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BULLETIN OF THE

TAYLOR SOCIETY

AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE
AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

President Brown says he'll see you at the

Spring Meeting

ANN ARBOR, MICHIGAN

May 14, 15, 16

Auspices University of Michigan

PERIODICAL DIVISION
13
1925

Engineering Societies Building
29 W. Thirty-Ninth St.
New York

APRIL, 1925 VOL. X, NO. 2

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BULLETIN OF THE
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Comment

IN THIS issue are assembled a number of papers which have been presented at local section meetings. They are adequately representative of the quality of local section meetings, but not of the range of subjects considered, for local section meetings are more informal than the national society meetings and many of the addresses do not take manuscript form. For instance, the New England Section has held this winter a series of most profitable discussions of the general problem of distribution, but none of these interesting addresses and discussions has as yet "congealed" into copy for the printer.

GROWTH of the Society has naturally brought about a functional difference between local section meetings and national meetings, and it is now impossible to say which is the more important. When the Society was small it was geographically more localized and its membership was more homogeneous as to the phases of management in which there was interest. It was then possible to include in one program of a national meeting essentially all topics of interest to the members because there were limited regional, industrial, functional or age preferences. But with growth in size and the various interests of membership, it has been more and more necessary at national meetings to select subjects of common interest and cases of most advanced practice, and to stimulate discussion of principles of universal validity. This has left to the local section the task of presenting programs representative of the particular interests of the membership of a section. In New York, section meetings have focused attention on department store planning (Miss B. Eugenia Lies of R. H. Macy & Co. will have a paper on this subject in our next issue), executive control and office management; New York up-state sections have been interested among other things in the inter-relations of departments, and of department executives; and New England has been discussing distribution.

THIS is quite as it should be. The Society will serve its membership better if the advantage of the division of labor is clearly recognized, the national society concentrating on fundamentals and universals and the sections at their more frequent meetings with more limited attendance concentrating on the problems of the plants in a particular region. For this reason it is highly desirable that a local section organization be established in every community in which there is a membership nucleus. The organization of new local sections and the promotion of the work of existing sections has been assumed by President Brown as his particular task, and it is hoped that he will find ready response of members to his efforts. The local section idea should make a strong appeal to owners and general managers, for the largest responsibility of general management is leadership of the younger executives by providing them with inspirational contacts; and it is the frequent, informal local section meetings, in which they participate with less reluctance than in national meetings, that younger executives can find intellectual stimulation, new information and inspiration.

Plans for the Spring Meeting

Ann Arbor, May 14 to 16

THE spring meeting to be held May 14 to 16 at Ann Arbor, Michigan, under the auspices of the University of Michigan, has been receiving splendid cooperation from members in that territory and from many other executives.

The meetings will be held in the Michigan Union where arrangements have been made for housing members and guests attending the sessions. The program mailed to each member will contain a card to facilitate reservations.

Nine years ago—May 11 to 13, 1916—the Taylor Society held a significant Conference on Scientific Management at the University of Michigan. It is hoped that this meeting will be equally successful.

The following members of the University of Michigan faculty comprise the executive committee in charge of the meeting: Joseph A. Bursley, Professor of Mechanical Engineering and Dean of Students, Chairman; Orlan W. Boston, Assistant Professor of Machine Shop Practice, College of Engineering; Edmund E. Day, Professor of Economics and Dean of the School of Business Administration; Charles B. Gordy, Assistant Professor of Mechanical Engineering and Clarence S. Yoakum, Professor of Personnel Management, School of Business Administration.

They have been aided by the following advisory committee: W. L. Clements, Bay City Industrial Works; James Inglis, American Blower Company, Detroit; D. L. Quirk, Peninsula Paper Company, Ypsilanti; H. H. Rice, General Motors Corporation, Detroit; H. H. Sealey, Motor Products Corporation, Detroit; and Ralph Stone, Detroit Trust Company.

The program will mark the society's first attack on the management problem from the point of view of the banker-investor and will continue the series of studies in industrial psychology. Special attention will be given to the leading Michigan industry—automobile manufacture.

The skeleton program for all sessions follows. Leaders of discussion for the various papers will be announced in the separate program.

Thursday, May 14, 4:00 P.M.—Session for Students of Management: "Daily Problems in a Manager's Office" by C. L. Barnum, Consulting Engineer, Pleasantville, N. Y.

Thursday, May 14, 8:00 P.M.—Session on the Management Problem from the Point of View of the Banker-Investor: "A View of Industrial Management That Interests Both the Engineer and the Banker" by H. I. Shepherd, Vice-President, The Guardian Trust Co., Cleveland.

Friday, May 15, 10:00 A.M.—I. Session on Office Management: "The Present State of the Art of Office Management" by W. H. Leffingwell, President, The Leffingwell-Ream Co., New York City.

Friday, May 15, 10:00 A.M.—II. Session on the Automobile Industry: "Production Control in Automobile Manufacture" by L. J. Purdy, Production Supervisor, Oakland Motor Car Co., Pontiac.

Friday, May 15, 12:30 P.M.—Business Meeting Luncheon for members only.

Friday, May 15, 2:00 P.M.—Session on the Automobile Industry: "Frequency of Change of Model" by T. J. Litle, Jr., Chief Engineering Department, Lincoln Division, Ford Motor Company, Dearborn; and "Should Automobile Manufacturers Make Their Own Accessories?" by J. H. Marks, Purchasing Agent, Packard Motor Car Co., Detroit.

Friday, May 15, 6:30 P.M.—Dinner for members and guests.

Friday, May 15, 8:00 P.M.—Session on Automobile Industry: Tendencies Affecting Methods of Management in the Automobile Industry" by James H. Collins, Chilten Class Journal Company, Philadelphia and H. M. Jewett, President, Paige-Detroit Motor Car Company, Detroit.

Saturday, May 16, 10:00 A.M.—Session on Industrial Psychology: "Experimental Psychology in Personnel Problems" by C. S. Yoakum, Professor of Personnel Management, University of Michigan.

Saturday, May 16, 2:00 P.M.—Michigan-Minnesota ball game; guests of the University of Michigan Athletic Association.

Salvage

IN A manufacturing plant which we had the pleasure of visiting recently we saw a table in one of the shops on which were a number of parts awaiting inspection of the "Salvage Committee." They had failed to pass inspection either because of defective material or defective machining. It was the duty of the Salvage Committee to determine how much of the loss could be recouped and in what manner. The exceptionally small quantity of parts which this particular shop found it necessary to condemn—and its product requires precision work—reminded us by contrast of other shops known to us, and set us to thinking about the problem of salvage. On whom rests the responsibility for avoidance of such waste?

In the case of a particular part defective because of the bad craftsmanship of a skilled worker who has been given adequate and accurate drawings and instructions, the responsibility undoubtedly rests with the worker. If he is not a skilled worker the responsibility may be in part his for representing himself as skilled, and in part the management's for not determining his skill, either at the time he is hired or subsequently, as a basis for assignment of work. If the loss is a result of incomplete and ambiguous drawings or specifications, the blame is clearly the management's. This is likely to be the case in the majority of instances—details of allowance and tolerance are too frequently left to the worker's guess. If the part is condemned because of defects in the material disclosed only by the machining, the responsibility cannot be allocated, although if the defects in material could have been discovered by adequate inspection, management is responsible.

This is not all there is to waste and salvage. There is infinitely more waste from unbalanced inventories. A fabricated part—no matter how perfect the craftsmanship and the material—is as much waste as is a part imperfectly machined, if it is a superfluous part in final assembly and has no market. On a rising and active market there is not much danger of failure ultimately to find a market, at some loss; but on an inactive or uncertain market the loss may be nearly total. Who is responsible? Clearly management, because of inefficient planning and control or their total absence.

But even with excellent planning and control in the shop, unbalanced inventories may result from ill-considered manufacturing orders from higher up. In such an instance the shop superintendent and his planning staff may be blameless, but the general manager and likely the sales manager are responsible. To be sure, they have less reliable data with which to work than does the staff in charge of mechanical processing, and to the extent that they have made carefully-considered plans on the basis of all available data, they may be relieved of responsibility; but in many instances they have not made any carefully-considered plans, and in the great majority of cases in which they have made such plans, they have stopped far short of securing all the data available. There result swollen and unbalanced inventories,—a waste not less reprehensible than the waste of a part spoiled by poor machining, and the cost of the waste is infinitely greater.

In moral responsibility there is no essential qualitative difference between the worker who spoils a part because of bad work at machine or bench, the shop superintendent who spoils many parts because of unbalanced production, and the general manager and sales manager who guess at sales programs and cause plant over-production and unbalanced inventories—all are bunglers at their craft. Quantitatively the difference is vast, and the farther from the individual machine and part one is, the greater the waste and the reprehensibility.

A worker using a dull tool or careless of drawings and specifications is not more to be blamed than a shop superintendent without precise planning and control, and neither of these is more to be blamed than the general manager without market analysis, master plans and other schedules. Each is an important member of an organic whole.

And each is essential that values may result from the work of the others. A workman who has spoiled a part has neutralized the values which would have resulted from certain efforts of other workmen, of the superintendent and his staff, and of the general manager and his staff. The superintendent and general manager who fail to plan and control, in the large and in detail, neutralize the values of efforts on the part of the workers—the workers may be paid for the labor on superfluous pieces but in the end they suffer a deduction somewhere else. In modern industry with division of labor between plants and within plants, each cooperator plays a part in giving value to the efforts of all other cooperators, and no one can create many values by himself. And planning and other "indirect" labor create values as much as do machining and other "direct" labor.

In an earlier day when one individual planned, fashioned and sold a commodity, it was easy to delude one's self into believing that it was the fabricating alone which contributed the value. But with large-scale industry and division of labor before our eyes, one should not be so easily misled. If the planner is to be credited with causing value finally to emerge from the worker's efforts, he must assume corresponding responsibility. He must plan and coordinate with as much precision as science permits.

The Present State of the Art of Office Management[1]

Report of a Systematic Analysis and Rating of a Variety of Offices During the Past Two Years

By W. H. LEFFINGWELL
President, The Leffingwell-Ream Co., New York[2]

On a rare day in June, 1893, I received my "diploma" as a full-fledged graduate of a business college in Grand Rapids, Michigan, and was duly accredited as a competent stenographer and bookkeeper. And no wonder! Had I not spent six months writing word signs and learning to hit the right keys on the old, blind Remington, and to rule neat red lines on my books?

So I went out into the cold, cruel world and began my search for a position—not a job, remember. My father had always said that he didn't want his son to work as hard as he had; therefore I went forth seeking a position "where the hours were not long and the work not arduous."

Though my diploma said I was competent, I soon found that it did not mean much to the business men of that day, for all asked me the embarrassing question, "What experience have you had?" They demanded at least six months of it. Of course, I had to tell the truth, and consequently failed to secure a position. So finally I sought a lawyer who kindly consented to allow me to work for him, provided I was willing to accept a salary of nothing a week. I accepted it gladly and for a magic six months worked at writing briefs, contracts, depositions, wills and other legal documents. To this day I can write a contract full of such mouth-filling phrases as "Whereas, the hereinbefore mentioned party of the first part, has, etc., etc.," and can make it just as dull reading as could any first class lawyer.

After this probationary period of six months' experience gathering, I had no difficulty whatever in getting a position in a furniture factory where there were no briefs or depositions, and all letters began with "We are in receipt of your kind favor, and in reply beg to state, etc."

This company had about 300 "hands" in the factory and two "gentlemen" in the office—the bookkeeper and myself. He kept all the accounts of the purchases, sales and payrolls, and made out the bills and statements, while I wrote all the letters. After writing them, I had to copy them in the copy press, and then stamp and mail them. That comprised the office work of that day, thirty-two years ago. No cost system, no planning methods, no statistical records, no market research!

What is the office today? What is an office in the modern sense of the term?

The office is that part of an enterprise devoted to the direction and coordination of its various activities. It is characterized by the gathering, classification and preservation of data of all sorts; the making, using and preservation of all kinds of records; the analysis and utilization of these data in planning, executing and determining the results of operation; the preparation, issuing and preservation of instructions and orders, and the composition, copying and filing of written messages.

My work in the office started at the beginning of the period of so-called "big business"—that period when mergers and trusts began to appear on the industrial horizon. It was then that the first great increase in clerical employees took place. In the census of 1880 there were 172,000 clerks registered; the census of ten years later showed 801,500.

In those days, large scale production was diligently seeking machinery of the automatic type, and I well remember that the kind of news in the papers of those days which most attracted executives usually related to the invention of some new kind of machine which would do the work of many men. Workingmen everywhere dolefully predicted the coming of the automatic factory in which practically no manual labor would be needed. Machines were the one desirable thing; men were only "hands." The big boss of those days was the one who could "throw the fear of God" into those "hands." Great hordes of immigrants came to

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[1] Paper presented at a meeting of the New York Metropolitan Section of the Taylor Society, April 16, 1925.

[2] Author of "Office Management; Principles and Practice."

America to take the places of those workmen who knew only the trades and crafts which were rapidly passing out of existence. These foreigners were wanted because they would work more cheaply than the native workmen and had no objection to working on the new machines.

This is, in brief, a general picture of industry in the nineties. Organization and control in the modern scientific sense were unknown.

But as industry was being transferred from the small shop with a few craftsmen to "big business" with hundreds, perhaps thousands, of "hands," "big business" began to find that the mere keeping of accounts and writing letters would no longer suffice. It needed improved methods of coordination to match the more complicated situation which was developing. It needed more records, and it must of necessity write more letters. Hence the great increase in the clerical occupational group during this period.

This sudden growth of "non-producers" between 1880 and 1890 did not pass wholly unobserved as a sinister accompaniment of big business, as many of the most discerning of those small business men who had not been absorbed by their larger competitors predicted that this invasion of clerical hosts would eventually ruin all business. We have lived to see the day when the number of 1890 has been quadrupled, yet industry still survives.

Yes, it still lives; but I am now beginning to fear that unless office management is brought up to the efficiency of production management, it will not be many years before the margin of profit will be narrowed to the vanishing point.

The office today is in practically the same economic condition that the factory was in the nineties; there is great attention given to processes and machinery—the more automatic the better—and there is a constant effort to get cheaper and cheaper workers, but there is practically no attempt to manage people.

Management is the art of handling men, materials and machinery for the purpose of producing certain desired results. It is an art that has, in some branches of business, been raised to a high degree of effectiveness, and in some notable examples to what may definitely and without fear of contradiction be proclaimed as scientific.

The art of management has as yet barely touched the office, and in this field a science of management is wholly absent.

For years I have realized that there is a vital need for measurement of work done in the office. Few office managers have even the slightest idea of what constitutes a day's work on the part of a clerk. In this matter every office is a law unto itself; comparison is difficult and therefore there is no comparison. There is no measuring stick.

Yet without measurement there can be no comparison, no record of improvement; without measurement, science cannot exist. No matter how many examples industry offers us of improvements through scientific methods of management, the office ignores them as inapplicable, and will continue to ignore them while there is no definite method for measuring its work.

This neglect of measurement has its natural effect on the employees. It is a matter of common knowledge that the average clerk of today is not the equal of the average clerk of a few years ago in intelligence, training, and ability to perform a large quantity of work. We are diluting the original fund of good clerks by rearing a horde of parasites whose ideal is to avoid work, and who regard it as cruelty that they should be asked to work. They assume, and act upon the belief, that they are different from other workers, and are therefore privileged to "loaf."

This is apparently a severe stricture; but note that I state deliberately that "we" are rearing this parasitical host, and by "we" I mean those to whom the management of clerical work is entrusted. The clerk is not at fault. His or her natural ability is as great as ever. "We" have made him what he is. "We" are the culprits, not the clerks themselves, whom we have fashioned.

An office manager friend of mine told me recently that he had transferred a clerk from one position to another. A few days later this clerk came to him and asked to be transferred back.

"Why do you wish to be transferred?" asked the manager. "Is the work too hard for you? Don't you like the man you work for?"

"Oh, no," replied the girl; "The man I work for is very nice and the work is not so hard. But on the other job I used to have a couple of hours a day to myself, and down there I have to work all day."

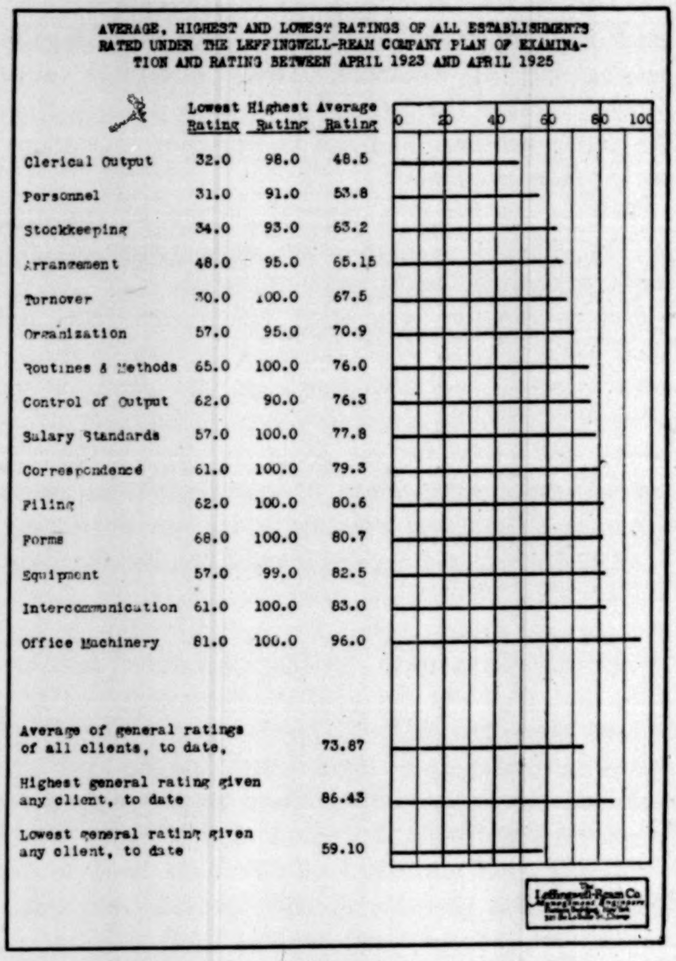
For many years our organization has been measuring the output on individual operations, and we have accumulated a large number of standard times; but in their collection we have invariably found that ability to perform work at a high standard of output depends upon many factors outside the actual operation itself. In other words, the best results are obtained only where there is a standardization of the physical conditions—the surroundings, the work place, the equipment and machinery—and where the work flows regularly and a certain standard method is followed; that is to say, when the management is of a high grade. It is folly to expect the best results from workers unless the conditions under which their work is performed are right.

This line of reasoning led me to the inescapable conclusion that a measurement of the office *management* of an organization is, after all, the vital thing.

Just two years ago, after months of study and preparation, we put into effect our Examination and Rating Plan, which was described in a paper given before this society on October 4, 1923[3]. The purpose of this plan is to evaluate justly, dispassionately and as accurately as possible the management of an office organization. The essential element of the plan is that we have divided the subject of office management into 15 main divisions and then into 93 subdivisions. Each subdivision is rated separately, and ratings are built up, with proper weighting, for each division and for the office as a whole.

Our method of making an examination is to send into an office a field examiner equipped with definite standard instructions on measurement, observation and counting. He is also provided with a standard questionnaire covering some fifty typewritten pages, and gets the facts pertaining to all the various questions.

These facts are then brought to our office where they are rated in accordance with a standard formula. Our Method of Rating is a loose-leaf typewritten book which contains exact prescribed instructions as to the procedure in each case. With this source and guide the rating engineers prepare a transcript of the field examiner's findings, and a rating on each subject is given.



AVERAGE, HIGHEST AND LOWEST RATINGS OF ALL ESTABLISHMENTS RATED UNDER THE LEFFINGWELL-REAM COMPANY PLAN OF EXAMINATION AND RATING BETWEEN APRIL 1923 AND APRIL 1925

	Lowest Rating	Highest Rating	Average Rating
Clerical Output	32.0	98.0	48.5
Personnel	31.0	91.0	53.8
Stockkeeping	34.0	93.0	63.2
Arrangement	48.0	95.0	65.15
Turnover	30.0	100.0	67.5
Organization	57.0	95.0	70.9
Routines & Methods	65.0	100.0	76.0
Control of Output	62.0	90.0	76.3
Salary Standards	57.0	100.0	77.8
Correspondence	61.0	100.0	79.3
Filing	62.0	100.0	80.6
Forms	68.0	100.0	80.7
Equipment	57.0	99.0	82.5
Intercommunication	61.0	100.0	83.0
Office Machinery	81.0	100.0	96.0
Average of general ratings of all clients, to date,			73.87
Highest general rating given any client, to date			86.43
Lowest general rating given any client, to date			59.10

Figure 1

Finally, a summary of our findings is prepared in written form for presentation to the client. Wherever we discover a condition that can be corrected, we offer a suggestion for improvement. These suggestions are numbered and set apart from the general text, and then summarized on a checking sheet which is bound in the first part of the report. The pages are numbered and the subjects indexed. Thus, we not only diagnose the conditions found and give a general rating as to the effectiveness of the office organization, but also prescribe ways and means for bringing the office up to a higher standard. Of late we have added another feature in the form of an outline program for future development work, which program is presented after our findings have been submitted.

This, in brief, is our Examination and Rating Plan, and I now propose to recount to you, subject by subject, the conditions which we have found in our examination of offices. The accompanying table, Figure 1, gives the lowest, highest, and average ratings we have given. The offices examined have ranged from 13 to 1,000 people in size, so that you will see that the conditions I shall describe are not confined to small offices in which generally not much attention is given to efficiency. As a matter of fact, we have had more success in enlisting the interest of the more efficient offices than we have had with the other kind, and these ratings, therefore, represent conditions in offices better than the average.

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[3] "A Practical Plan for Rating the Efficiency of an Office Organization," *Bulletin of the Taylor Society*, Vol. VIII, No. 5, October, 1923.

I shall discuss first those subjects with respect to which conditions were found to be best and proceed gradually to those with respect to which the greatest need of improvement exists. Please do not assume from this order that I consider any one of these subjects more important than any other. It is true that they will weight differently in different organizations, but each and every one of them constitutes a vital subject. The ability to see is perhaps more important in office work than the ability to walk, but this is no reason for assuming that the ideal office employee should have only one leg.

Recently a manager who seemed somewhat chagrined at the low general rating we had given him said to me, "Now suppose we considered only the important subjects and ignored the unimportant ones, what would our rating be?" "You cannot ignore any one of these subjects," I told him, "because you could not manage your office without them. It is because you consider them of little importance that you have such a poor rating and such a high overhead. When you begin to realize what effect each of these subjects has on your general organization, you will begin to improve your office management."

USE OF OFFICE MACHINERY is the subject receiving the highest rating. This rates 96 per cent as an average of all the offices we have examined. This is not strange, for machinery is the first thought of the office manager today, as I have previously mentioned. It is, however, the only subject of the fifteen that rates above 90 per cent.

INTERCOMMUNICATION, next highest in rating, averages 83 per cent. Its subdivisions are Telephone Service, Clerks at Desks, Messenger System, and Necessary Mechanical Devices. The telephone service we find universally good despite popular opinion to the contrary, its greatest defect being the failure to use extensions as liberally as they should be used. It costs but two cents a day for an extension, and as clerical wages usually average a cent a minute, it is only necessary therefore to save two minutes' time daily to pay for the extension. The office manager sees the telephone bill as a concrete expense, however, while he does not see the many small increments of loss of clerical time—which is paid for nevertheless.

The greatest defect in this subject is, however, in the subdivision which we call Clerks at Desks. A clerk is supposed to do his work at a desk, and if he is not found there and is working elsewhere delivering a message, getting information or the like, it is due to a defect in Intercommunication. We fix the standard at 10 per cent on their feet, and when a larger percentage is found, we deduct from the rating. We have found offices with as high as 30 per cent on their feet. Of Necessary Mechanical Devices we usually find a sufficiency where there is an application for them.

EQUIPMENT rates 82.5 per cent. The greatest deduction here is for Adequacy for Purpose. We find inadequacy in equipment which is too large, too small, too high, not suitable for the operation, and the like. There is an apparent tendency in many offices to hoard equipment for years after it has outlived its usefulness. For instance, the high standing desk is a relic of the days of big books. Now, when books are small, there is no excuse for it; yet we find many of them still in use. The Office Managers are probably waiting for these desks to wear out, and —well, it takes a long time to wear out a desk!

FORMS rate 80.7 per cent. This subject is divided into nine subdivisions, as follows: Economy, Effectiveness for Purpose, Suitable Quality of Paper, Suitable Colors, Color Schemes, Uniformity in Size, in Color, in Shape and in Typography. We find many defects in the first subdivision, that of Economy. There seems to be a general lack of knowledge on the part of office managers as to what size of form to make. In one organization we found that 44 per cent of the forms cut to waste. Many are too large, in many too expensive paper is used, and frequently the method of production of the form itself is needlessly expensive. Under Effectiveness for Purpose, we find that little attention is paid to the question of how the forms are to be used after they are designed. It is not at all unusual to find a form designed for use very effectively with a pen or pencil, but actually intended to be filled in on a typewriter, and because of the design it takes longer on the machine than it would by hand. There is a diminishing tendency to use fancy colors on forms, which is a good sign, as many colors are fatiguing to the eyes of the clerks using them. In one office, however, we found 26 forms, of which over a million and a half copies were used annually, printed on paper of a color which is peculiarly bad for the eyes. The use of elaborate color schemes is dying out, but we frequently find color schemes badly designed. There is very little Uniformity in Size, many unstandardized sizes being the rule; one large office was found with

75 different sizes of forms. In one organization we found $2,000 worth of equipment which was made to order because the forms stored in it were not of standard size. In this case, standard equipment for standard sized forms could have been procured for less than half that price.

FILING rates an average of 80 per cent. Economy of Space is usually given consideration, though we have found a number of cases where great waste of space existed. Work Up-to-Date is another subdivision which usually rates fairly high, and Accuracy is also high as a rule. Our standard for Accuracy allows 1 per cent for error, but our examinations show that this figure is somewhat too liberal. We have found a large number of cases where there was more than 1 per cent of error, but on the other hand, a considerable number where there was less, and one where there was most unusual and minute accuracy. I have heretofore set the limit of human accuracy in this activity as one-tenth of one per cent, or one error in 1000. We found two cases about equalling this, and one which was actually 25 per cent better. The Value of Filed Material is another subject we examine. Ordinarily one files material for the purpose of finding it again at some future date, and if there is no possibility of it having any future value, it should not be filed. However, we find that the useless material filed runs about 10 per cent and in some cases as high as 25 per cent, which means an excess of equipment and of labor in filing and transferring. Adequate Custody of Files is a subject the value of which is very little appreciated, and in many cases not understood.

This ends the list of subjects that rate 80 per cent or better.

CORRESPONDENCE rates 79.3 per cent. Among the more efficient companies a great deal of attention has of late years been paid to business correspondence, and I doubt if this subject, ten years ago, would have rated 60 per cent. There is, however, still much room for improvement. As a rule the Clearness of the correspondence examined was satisfactory, as was the subject of Courtesy. The Composition and Grammatical Construction were found, however, to be much below par, and many curious errors were discovered as well as the common errors of speech. It was noted that as a rule correspondence directed to suppliers, and to salesmen or other persons in the employ of the company, was harsh and often bordered on the discourteous, while the correspondence with customers slopped over to the other side and often became so servile as to be nauseating. The General Appearance of the letters is not as good as it should be. Our greatest reductions were made, however, in the subdivision Production. Modern methods of production of routine correspondence were seldom used, except in the case of a few isolated forms. Model letters, form letters and form paragraphs are not used to expedite the production of routine correspondence to anywhere near the degree that they can be so used.

SALARY STANDARDS. The rating on this subject is 77.8 per cent. In three subdivisions are, Salaries Not Unnecessarily High, Standard Salaries for Similar Positions, and Salaries Not Below Market. We occasionally find salaries needlessly high, but on this subject we are very liberal, being strongly of the opinion of Frederick Winslow Taylor that high salaries bring low production costs. The variation between salaries for similar positions is often very great, and it is in this subdivision that we must make the greatest reductions. We also frequently find salaries below the market, and it is our invariable advice that a higher grade of clerk be employed for this work and paid a salary commensurate with market conditions.

CONTROL OF OUTPUT discloses a curious anomaly. It averages 76.3 per cent in our rating, yet the average rating for output itself is much lower, as will be shown later. In studying the results on this subject, I have reached the conclusion that our rating method is correct, but it does not take into consideration the fact that most offices are overmanned. It is quite possible to have an Uninterrupted Flow of Work if the office is organized with a sufficient body of employees to take care of the peaks. We weigh this subdivison at 40 points, as we consider it a very important factor. As a rule we do not find work held up or behind time, the reason being not good management, but rather a surplus of help—under such conditions work could hardly be held up. Of Scheduling, as the term is used in scientific management, there is very little to be found in the offices we have examined. Special methods for Handling Peaks are also absent, with the exception of the method, or rather condition, previously mentioned, which we do not consider a legitimate one. As a rule the Working Force is *not* Well Balanced, and of Adequate Planning there is practically none. So in this one subject, apparently indicative of good management, we find that practically none of the modern shop methods is used, a paradoxical and curious condition, explainable only as above. The condition, however, inevitably results in low clerical output, as we shall see later.

ROUTINES AND METHODS rate an average of 75 per cent. We divide this subject into two parts: ROUTINES, which are considered under the subdivisions of Directness, Simplicity, Uniformity and Expedition; and METHODS, where Effectiveness, Simplicity and Uniformity are the subdivisions rated. Violations of the straight line flow of work, covered in the subdivision Directness, are very frequent. In the office of a large organization noted for its efficient methods in the shops, a routine of 26 steps was found with 8 departures from the straight line flow. In another office there were 16 steps and 6 departures in one routine. Under Simplicity, it is by no means unusual to find from 15 to 20 per cent of superfluous steps. Uniformity is usually good, and Expedition very often poor. We found one routine that required 10 days for the work to percolate through it, and cases of from 2 to 4 days are not at all uncommon. In all these cases the work could be put through the routine in one day, and as a matter of fact, the particular routine that once required 10 days now requires but three hours for the same work to pass through it.

The Effectiveness of Methods we find in our examination to be usually defective. For example, in one large office we studied 4 methods which contained a combined total of 52 motions, and of these, no less than 22 were superfluous and wasted. It is not strange therefore that output is low. Closely allied to this is Simplicity in Methods. We very frequently find methods to be unnecessarily complicated, showing that they have not been the subject of any scientific study whatever. Uniformity—in Methods—means that all clerks working on the same operation are using the same methods, but this is rarely the case and is additional proof that methods are not studied.

ORGANIZATION rates 70.9 per cent. Clearly Defined Lines of Authority are determined by having the several executives state in writing just what clerks they consider are working for them respectively, and at the same time asking the clerks to state—in writing also—the name of their respective chiefs. We have more quiet amusement over this subdivision than almost any other of the 93. It is an interesting experiment for any office manager to make, for he will soon learn that there is much room for improvement here, as the confusion is frequently very great in many cases, and somewhat ludicrous. Of Functionalization there is very little—in fact few office managers have any idea what the subject implies or means. In the subdivision Not Too Many Departments Under One Head we occasionally find executives undertaking more work than they are capable of handling properly—more work than any one man, however able, could be reasonably expected to handle. The existence of Organization Charts is hardly known in office management, and though during the war there arose a fad for making them, they soon became obsolete, as their use or value was little understood. In many places we find them tucked away in the desk of some executive. They are seldom either properly made up, up-to-date, or in any way representative of existing conditions in the organization. The same may be said of the Organization Write-up and of Standard Practice Instructions. This entire subject of Organization is strongly indicative of the reasons for low clerical output. It is the last subject that rates 70 per cent or better.

TURNOVER shows an average rating of 67.5 per cent. Apparently there is little appreciation on the part of office managers of the fact that it costs money to hire and train office employees. That this cost averages in excess of $100 per employee is readily calculable in most cases, but is not generally known. Office managers usually see the desirability of keeping employees who have demonstrated their value, but seemingly give little heed to the expense of "hiring and firing" a large number of applicants in order to secure one satisfactory clerk. We divide this subject into two parts: Length of Service and the Rate of Turnover. Of course in calculating the former, it is necessary to consider only the number of employees on the payroll at the time the examination is made, as from the records which are available in most offices it is not possible to determine the length of time each person employed, who has since left the organization, was kept on the payroll. For this reason the figure is usually rather high—about twenty-four months of service. The Rate of Turnover is much higher than it should be. We set the best known practice as 10 per cent, figuring the ratio of separations to the average payroll. Our findings show that the turnover ranges from 30 to 50 per cent. The worst case we found was 200 per cent. The best was 9.7 per cent, showing that our standard of 10 per cent is attainable.

ARRANGEMENT averages 65.15 per cent. This we have subdivided into eleven parts, the first being Economical Use of Space. Space is expensive everywhere, but particularly so in the large cities where the great armies of clerks are found. We find that as a rule space is very poorly utilized. I quote at random five cases from some of our findings as to the possible rental saving per annum by an economical use of space: $2,750, $9,125, $3,300, $6,336 and $13,908. There are frequent violations of Direct Flow of Work to be found in many offices. With respect to Adequate Light, the rating, as a rule, is very poor. We have set the standard at ten-foot candles, but very few offices have better than an average of three or four-foot candles, and in one large building recently completed for one of America's greatest corporations, we found readings as low as two foot-candles and only one spot where it ran above nine. In one office where the average was three foot-candles where the clerks worked, we found that the cloak room was lighted with an intensity of twenty foot-candles, a condition showing the ridiculous lack of appreciation of the necessities of illumination. Circulation Aisles are usually not adequate except in the larger offices. Preventable Noise is rarely systematically attacked as a problem to be overcome, though it is easily demonstrable that noise is a fatigue producing factor with most clerks. In the matter of Ventilation, windows are usually the sole resource. This is fairly satisfactory in the summer season, but usually worthless in the winter. Adequate Cloakrooms are sometimes provided, but often not. Adequate Toilet Facilities are provided as a rule in large, public office buildings, but not in others. An Adequate Reception Room for the public is occasionally found, though little constructive thought is apparently given to this subject. Adequate Drinking Fountains are usually provided, but there is often gross neglect in selecting their economical location. I know of one large office with a thousand clerks, in which calculation shows that each clerk walks an average of 50 miles annually to reach drinking water—50,000 miles annual travel for the entire office force—a long way to go for a drink even in these days! The General Appearance factor is very often ignored, though it is a matter of vital importance, connected not only with the impression received by the general visiting public but with the morale of the office as well.

STOCKKEEPING averages 63.2 per cent. It is a subject of great importance in large offices, but of comparatively minor import in small ones. I will pass lightly over this matter with the remark that stockkeeping as a science is unknown to the office manager. We found but two good Location Systems, and Order and Neatness are generally defective. Issuing Systems and Control Methods are usually absent, and an adequate Inventory System is almost unknown.

PERSONNEL rates 53.8 per cent. Considering the great amount of public attention that has been directed to this subject since the war, this low rate seems rather surprising, unless one remembers that the office as a general rule is behind the times on most management subjects. There are few offices which keep Progressive Records of Employees' Performance, and most office managers apparently consider that such a record would be merely a waste of time. Methods for Testing Employees' Ability will be found only in the largest and most up to date organizations, the "hire and fire" policy being used almost exclusively everywhere else. There are practically no offices with definite Training Methods. Employment Methods and Discharging Methods are not up to the standards usually found in the shops, and there are few offices which have any definite policy governing Promotions. Methods for Developing Employees' Versatility are usually lacking, though this has proved a veritable gold mine in some cases. Plans for Determining Causes of Dissatisfaction are only occasionally found. As a rule, however, there is a Vacation Policy, which is perhaps to be explained by the fact that office employees were the first in industry to have a vacation with pay. Bonus, Profit-sharing, or Other Plans of Similar Nature are found occasionally, but as a rule little attention is paid to these methods of developing office morale, except in banks and similar institutions. The banks have a custom of paying an unusually high bonus at the end of the year, but this is generally accepted by employees in lieu of salary, which therefore nullifies its character as a bonus, or something extra. This subject, which is highly developed in other fields of modern management, stands very low in the office, an additional proof of its failure to keep pace with modern industry.

CLERICAL OUTPUT, the final subject, depends upon all fourteen subjects which we have considered. The purpose of each of these divisions is to produce a certain level of ouptut, and just how well the average office manages with these fourteen subjects may be deduced from the rating on clerical output, which is 48.5 per cent. The subject itself has three subdivisions for rating purposes; Division of Labor, Interruptions, and Quantity Performed, the heaviest weighting being given to the latter. Though office work especially adapts itself to division of labor, and though it is well recognized that this principle is basic to modern economics and mainly responsible for our present industrial civilization, it is not carried out in the average office to anywhere near the extent it might and should be. It is not at all rare to find clerks engaged on half a dozen or more different tasks in one day, and in some cases we meet with the claim that this is a superior method, a view with which I emphatically disagree. In one large office, which was particularly low in all other ratings, the clerks worked on an average of 11 different duties each day of the study. Closely allied to this is the subject of Interruptions, one office averaging 23 interruptions per clerk daily. Little thought is given to this, despite the very apparent loss of time and output it causes. In Quantity Performed the record is very low, indeed. In handling orders, for instance, it is by no means uncommon to find that it requires a full day for performing all the clerical work upon each order. The best record we ever found in this matter was 30 minutes, and the worst, 1,200 minutes, the latter in one of the largest organizations in the country. The average output per stenographer in square inches of typewriting is less than 100 per hour, though the standard of 200 is easily attainable by the normal trained stenographer. In one important office we found that the average number of letters written daily per stenographer was 4.5 and there were more than 25 stenographers in this office. We frequently find that offices are not getting 25 per cent of our standards on certain operations. In making our general calculations, however, we do not rate on one operation, but take a number and average the efficiency on each. I believe it to be a conservative statement to say that the offices of this country, taken by and large, are not getting half the output from their clerks that can be obtained by proper management methods.

This completes the picture of modern office management as shown by our examinations and measurements —a sorry picture, I must admit. But bad as it is, the indications are not that office management is getting any better, but that year after year it is getting progressively worse.

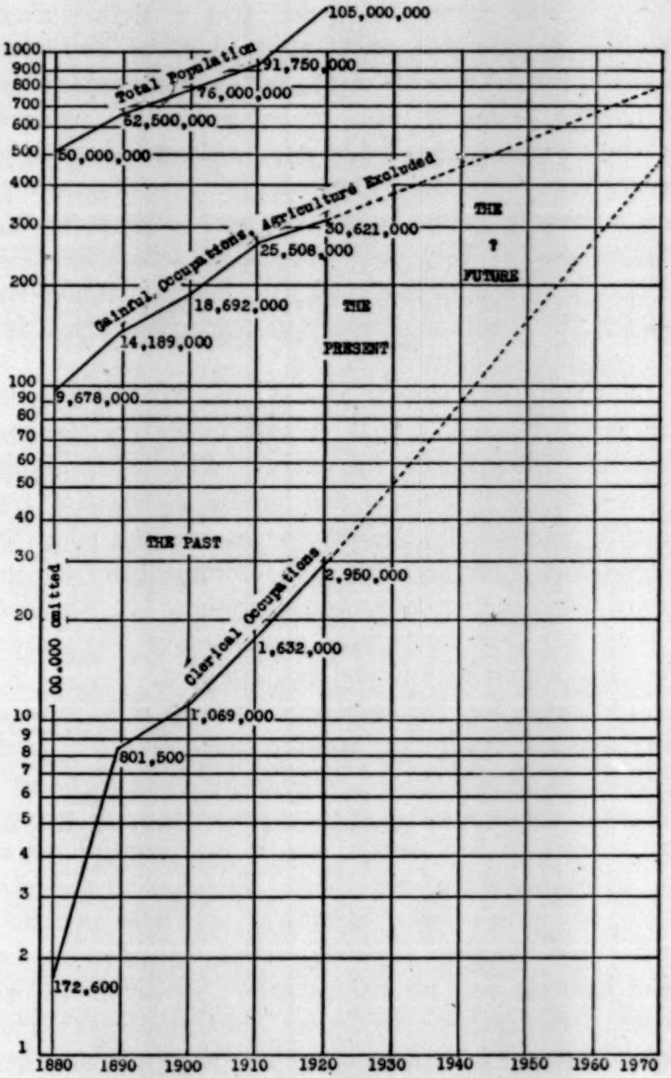

Figure 2
The Growth of the Clerical Groups

Let me back up that last statement. In 1880 there were 10,000 bookkeepers and accountants in all the banks of the United States, and today three banks in New York alone have that many, and there are 30,000 banks in the entire country. In 1880 there were 172,000 clerks, while today there are nearly 3,000,000. It will naturally occur to you that there are many more people in the country now than in 1880. Very well! The population has a little more than doubled during this time, but the number of clerks has multiplied seventeen fold, a growth which I have graphically pictured on the accompanying chart (Figure 2). Does it not present a startling condition that must be corrected if business is to survive and continue profitable? How long can the office continue to grow at the rate shown for the last ten or twenty years? Make all the allowance you care to for the increasing use of clerical operations in modern business, it still cannot be denied that a clerk makes nothing directly that can be eaten, worn or otherwise used to sustain life, his chief product being apparently a number of marks made on paper. If this sinister growth continues for a few decades longer—say fifty years more—we shall all be under the painful necessity of making a living by writing each other's letters, for we shall all be clerks. We shall approach the condition of the inhabitants of that fantastic island on which all "made an honest but precarious living by taking in each other's washing."

Naturally this sounds absurd, and of course it is absurd. It cannot actually happen under any circumstances. But what can happen, nay, what is happening under our very eyes, is that profits in business are rapidly diminishing, and unless measures are taken to check this condition, they will continue their downward trend until they vanish altogether. In the next decade the keen competition now upon us will simply force attention to this ominous question.

The cause for this outrageous growth right now is the general apathy of business men regarding the subject of clerical work. Who is the office manager? In many cases there is none; in others, he is merely an overgrown bookkeeper, who is in charge of but a small proportion of the clerks, the remaining clerks being in charge of other executives—the sales manager, who cares nothing especially about managing clerks and is intent only on making sales; the factory manager, who despises clerks as "non-producers" and spends most of his time on production problems; the treasurer, who is interested in his financial statement but certainly not in clerks and clerical work. Where there is an office manager, is he ever called into the general executive council? He is not. Is his opinion sought on clerical matters? It is not. The office has been and still is the neglected Cinderella of modern industry. No one is interested in her. Perhaps a better, though more threatening analogy, would be to compare the office to a Frankenstein constructed by big business which will eventually devour its makers.

Fifteen years ago Harrington Emerson startled the business world by stating on the witness stand that the railroads of this country could save a million dollars a day. At the time his statement was pooh-poohed as extravagant, but today it is generally regarded as a conservative estimate. At present the clerks as an occupational group far outnumber any other single occupational trade in the country, agriculture excepted. This group exceeds by many hundreds of thousands the figures for each of the three next largest groups, the railroad workers, the miners and the iron and steel workers. Reduced to percentages, the figures given show that one person out of every ten earning wages is a clerical worker of some kind, and this percentage is steadily and rapidly increasing.

That it is possible to divert a large percentage of these workers to other occupations is evident from the facts already quoted. I shall not attempt to show here the tremendous possible saving of supervision, building space, fixtures, machines and supplies which would result from a countrywide saving of clerical waste. When we see on every hand the new and tremendously costly office buildings that are being erected, it is easily possible to visualize the waste there and in the accessories above mentioned which go with these gigantic structures. I shall confine myself, however, to the saving on the salary bill.

The three million clerks in this country probably receive an average wage of $4 per diem, which means a daily wage bill of $12,000,000. From the examinations we have made, I have no hesitancy in saying that the average office is not 50 per cent efficient, though I would not insist that all this loss is definitely recoverable. If, however, modern management methods are applied to the office and yield the same results that they have yielded in the factory—comparing the factory of today with that of twenty years ago—it is easily possible that half of this loss can be recovered, and this very conservative estimate means a saving of approximately $3,000,000 a day.

Recent Bulletins Exhausted

SALES of the December, 1924, issue of the Bulletin have completely exhausted our stock. A number of schools and colleges have recently placed "back orders" for binding which we should like to be able to fill. Any member who does not bind his Bulletins will be rendering an educational service by returning this number. Copies of the October, 1923, issue are also urgently needed.

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A Control Chart for the Chief Executive[1]

How Gantt Charts Visualize Standards, Progress and Achievements

By WALLACE CLARK[2]
Consulting Management Engineer, New York

THE purpose of reports should always be to serve as a basis for executive action. Since responsibility for the formulation and execution of policies in regard to the conduct of a business rests upon the chief executive, he cannot allow his decisions to be based on general impressions or the opinions of members of his staff.

When business organizations were small, an executive could base his control on facts secured from verbal reports. As industry expanded he found it impossible to keep informed as to everything that happened in connection with his business and he therefore had this information condensed and presented to him on written reports. However, the figures on these reports stood alone and there was no standard of comparison to show whether or not conditions were satisfactory; the reports therefore did not indicate where action should be taken.

In his attempt to secure some basis for action, the executive had these figures compared with some other period—the previous month or the same month of the previous year. This was obviously a step in the right direction, but it was only moderately effective, because the executive had to remember whether the period used for comparison had been normal and, if not, how far it had been from the norm.

Because this comparison was not dependable, reports frequently failed to indicate action until it was too late. This resulted in the drawing up of additional reports in the hope that if one failed to indicate a dangerous tendency the executive would note it on some other report. The confusion resulting from these overlapping and inadequate reports, combined with the entrance of industry into an era of smaller margins of profit, has necessitated a more dependable method of control.

More Dependable Method of Control Developed

The distinguishing feature of the method developed to meet this situation is that reports make it immediately apparent that a certain figure is satisfactory or unsatisfactory by comparing it with a plan or a standard. The executive decides in advance what conditions or programs he will consider satisfactory and secures reports at regular intervals which compare actual conditions with those he has predetermined. He is thus left free to concentrate his attention on two things: (1) the cause of variation from the predetermined condition; (2) the action to be taken to bring conditions in line with his plan.

This has been a long step toward simplifying management and it has been applied to almost every phase of production and distribution as well as to transportation and governmental activities. The chief executive has welcomed this method and now has available reports which are definite and dependable. This new method has made it possible to discontinue these reports which overlapped or duplicated information. On the other hand, the fact that the new type of report is effective has stimulated its use and it has been applied to activities which were heretofore considered impossible to cover by reports. In sales organizations consisting of hundreds of men and plants employing thousands of workmen the daily performance of individuals is now being charted against standards or quotas.

But modern business is extremely complex and when all of its phases are adequately covered by reports the result is so voluminous that it is physically impossible for one man to read all of them, to say nothing of acting on the information they contain. The chief executive has, therefore, delegated to the members of his staff the task of interpreting these reports and taking the action they indicate. However, when this has been done he is face to face with another dilemma: he must see that the responsibilities he has delegated are properly executed and he has no information as to progress except what he can get from additional copies of the various reports he has turned over to his staff.

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[1] A paper presented at a meeting of the New York Metropolitan Section of the Taylor Society, March 19, 1925. Reprinted, by permission, from *The Iron Age*, March 19, 1925.

[2] Author of "The Gantt Chart," "Shop and Office Forms," etc.

It is well known that an executive often formulates his most important policies when he is away from his desk. He then has an opportunity to turn the matter over in his mind, to weigh objections against advantages and to reach an unhurried decision upon the course to be pursued. But an executive should not have to get away from his desk in order to think clearly. He must be freed from detail and have presented to him in the briefest possible form only the necessary facts on which to base his decisions and to enable him to apply the judgment and experience which have caused him to be singled out for the position of leadership in his organization.

Chart Frees Executive of Detail and Permits of Concentration on Control

The operating control chart illustrated has been developed to clear the chief executive's desk and mind of detail so that he can concentrate his attention on the control of his organization as a whole.

The information which has been entered on this chart obviously applies only to the company for which it was drawn up, but the method may be adapted to any business or organization.

The chief executive of this company wished to keep in touch, first of all, with those things which affect the attitude of customers toward his company, that is, the quality of his product and the service rendered. He also wanted to be informed as to the work ahead of his plant, the orders received month by month, data concerned with the operation of the business, such as costs, expenses, idleness and inventories, and, finally, regarding employees—accidents, labor turnover, average earnings and individual production.

Schedules or standards were therefore developed for all of these activities and the actual performance was charted against these standards. This indicated automatically whether or not progress was satisfactory. If the performance was reasonably close to the plan, the executive knew that there was nothing to worry about and he could safely dismiss the matter from his mind. If, however, the actual performance had fallen below the standard, he asked the member of his staff to whom he had delegated responsibility for that part of the work to bring him reports which went into further detail. They discussed the causes of the unsatisfactory condition and the action which should be taken to correct it. On the other hand, if the actual progress had been considerably better than the schedule, the chief executive complimented his staff and discussed the steps to be taken in order to speed up other activities to keep pace with the one ahead of schedule.

In this way the time of the chief executive was conserved and his work made more effective, because his attention was directed to those things which were most in need of his knowledge and experience.

This control chart, it will be noted, covers a period of one year divided into months. The figures at the left of a monthly space represent the schedule, quota or standard for the month, while the figures at the right show the cumulative schedule. The light lines represent the actual performance charted on the scale of the schedule for that month. The heavy lines show the cumulative performance. The "V" at the top of the sheet indicates that this chart was photographed immediately after the December records had been entered. If a heavy line ends directly under the "V," it is clear that that particular activity has proceeded according to schedule or that the standard has been attained. If the end of a heavy line is to the right or the left of the "V," the activity has exceeded or fallen short of the standard.

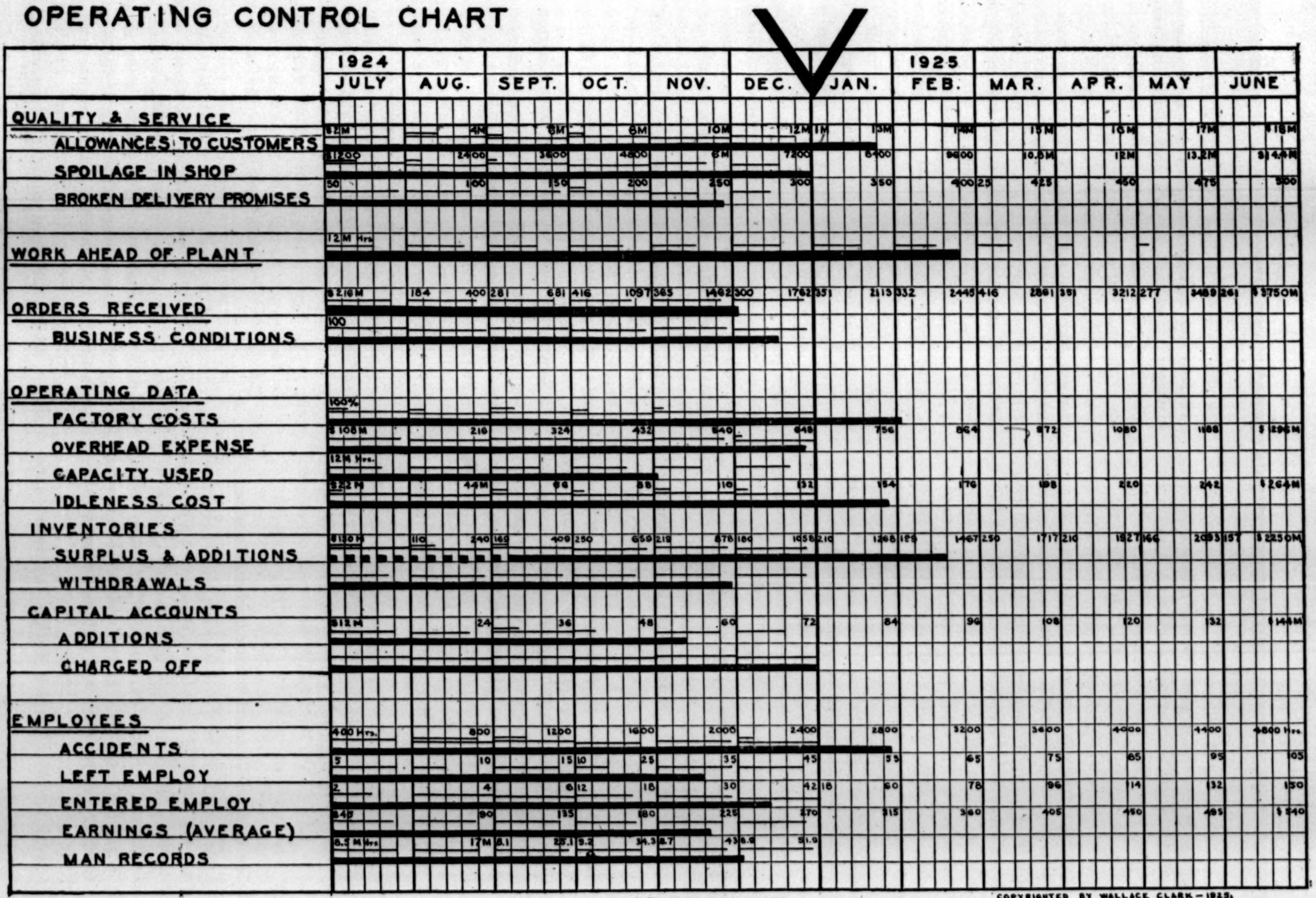
In the case of some items, such as "allowances to customers," the shorter the heavy line is the more satisfactory is the condition, while in other items, such as "orders received," the longer the line the better the performance.

Check Kept on Quality of Product and Service

In looking for some quantitative measure of the quality of his product, the executive for whom this chart was prepared found that the allowances to customers due to defective goods provided the best indication. He decided that if the allowances did not amount to more than $2,000 per month for the first six months and $1,000 for the second six months, the quality situation would be satisfactory. The chart shows that at the end of the first half year the standard had been exceeded and that this had happened in August, September and October.

The losses due to spoilage in the shop approached the matter of quality from a different angle. The light lines on the chart show that during the first

OPERATING CONTROL CHART



GANTT PROGRESS CHART

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three months the spoilage had been considerably in excess of the limit set. When this was noted at the end of the first month, better training facilities were provided for workmen, which resulted in such rapid improvement that by the end of December the total spoilage was well within the schedule.

The service rendered by a company to its customers is difficult to measure, but at least an indication is secured by a statement of broken delivery promises. The chief executive wished to build up a reputation for making good on every promise, because he knew what a valuable asset such a reputation is. The chart indicates that the allowance of 50 broken promises per month had been bettered. The executive took advantage of this opportunity to congratulate his superintendent on his success in reducing the number of broken promises and they agreed that for the following year they would set a standard of 25 per month.

Work Ahead of Plant Definitely Known

In making his plans for the future one of the first things this executive wanted to know was the amount of work ahead of his plant. He had three shops, each turning out a varied product, so that a quantity of goods as an indication of work ahead was of no value. However, a per cent of the capacity of his plant which was covered by orders gave him definite information. The total capacity of his three shops was 12,000 machine hours per month. The chart shows that on the first of January 60 per cent of the capacity of the plant for that month was covered by orders, in February 50 per cent, and so on. These orders could be turned out only on certain types of machines and therefore could not be completed until May, but a comparison of the total work ahead with the total capacity was shown by a heavy line which indicated that there was less than two months' work ahead.

Sales Quotas Compared with Orders Received

At the beginning of the season the chief executive had set his quota of sales at $3,750,000. This total had been split up into monthly quotas in accordance with the seasonal variation of previous years. The chart indicates that at the end of six months the total orders received were almost a month behind the quota.

In working with quotas during previous years the chief executive had been confronted with one exasperating difficulty. When he asked his sales manager to explain why the volume of orders received was less than the quota, he usually received the reply that business conditions during the period were not so good as had been expected when the quotas were set. On the other hand, if sales had exceeded the quota, the sales manager had never attributed his success to good business conditions. The chief executive was irritated, not by the attitude of the sales manager, but by the uncertainty in his own mind as to what proportion of success or failure was due to business conditions and what was due to sales policies. He wanted the influence of general business conditions made clear so that the comparison of orders received with quotas would accurately reflect the efficacy of sales policies and their execution.

The chart shows that actual business conditions turned out to be close to the forecast during the first few months, but later had not come up to expectations, so that at the end of six months general business was almost half a month behind the quota. This made it clear to the chief executive that half of his shortage of sales might be ascribed to business conditions, but that some other reason would have to be found for the remainder of the falling off.

Costs and Other Operating Data Charted

Under operating data there were grouped six of the most important matters connected with the operation of his plant, with which the chief executive wished to keep in touch. The first was factory costs. The operations on the various products of the plant had been studied and standard costs developed. The chart indicated that at the end of December the cost of the work put through the plant had exceeded the standards by about 12 per cent. The light lines, however, showed that the costs had been lowered month by month and that in December they had been inside the standard.

In arriving at these standard costs the overhead expenses had necessarily been predetermined and obviously the executive wanted to know whether or not the actual expenses were kept in line with the budgeted amounts. The chart shows that the actual expenditures were within the budgets, which indicates that the machine rates in use were approximately correct; that is, the predetermined expenses which had been charged by means of machine rates into the cost of the product or into idleness accounts were close to the actual expenses. If the cumulative line had been shorter, it would have indicated that the machine rates had been too high and the value of the inventory inflated. If the line had been longer, it would have meant that the predetermined rates had been too low and that the cost figures in use did not cover the entire cost.

At the beginning of the season the chief executive knew that he would not be able to run his plant at full capacity, but he wanted to keep before him throughout the year a record showing what part of the plant's capacity had been used. The chart shows that during the first half of the year he had been able to make use of only two-thirds of its capacity.

In order to keep before him the actual cost of maintaining part of the plant in idleness the chief executive set a limit of $22,000 per month to cover this idleness cost, but the chart shows that he was not able to keep within this limit and had gone almost $20,000 beyond it during the first six months.

The inventories of raw materials, work in process and finished goods were in the opinion of the chief executive too high in proportion to the probable sales. He therefore aimed to turn over the investment in inventories twice a year, hoping that the following year it could be turned over three times. Instead of charting the total value of the inventory against a predetermined amount it was found better to chart the additions to inventories and the withdrawals in order to find out to what extent the additions should be speeded up or slowed down.

The chart indicates by means of a heavy broken line that at the beginning of the season the inventory had exceeded the six months' turnover by a little over two months. At the end of the half year the cumulative lines showed that the additions were a month and a half ahead of schedule and withdrawals a little more than a month behind, the net result being a larger inventory than at the beginning of the period.

The company's investments in land, buildings, machinery and equipment, which for the sake of brevity were referred to as capital accounts, were watched by the chief executive to see that they did not grow too large for the volume of business and, on the other hand, to see that enough money was spent to keep the buildings and equipment in first-class condition. During this season in which he did not expect capacity business, the executive planned to buy no more equipment, but merely to keep his present buildings and equipment in good condition. He therefore made the budget for additions equal to the depreciation to be charged off.

The chart shows that at the end of six months $20,000 less had been spent for additions than had been charged off. At a first glance this would appear to indicate poor judgment, for in spite of the fact that the inventory had been too high at the beginning of the period, it had been increased, while the buildings and equipment had not been properly kept up. However, this had been done by the chief executive deliberately and with full knowledge of the facts. In order to avoid laying off old employees, and possibly losing some of the most faithful and skillful workmen, he had decided to manufacture for stock during the first three months until the volume of orders should so far increase as to keep his working force busy. The result was, of course, a higher inventory, but it was considered wise to take some money out of capital accounts in order to avoid laying off old employees.

Information Relating to Employees Included

There were a few facts in regard to employees on which the chief executive was particularly anxious to keep informed. He did not regard industrial accidents as necessary evils and felt that he had no right to place his employees in dangerous positions even if they were willing to run risks for the sake of wages. He had initiated safety-first campaigns, had guards and safety devices attached to machines and had taken every possible precaution against accidents, but he knew that foremen and supervisors were likely to become discouraged when workmen did not take advantage of the accident prevention devices. Accordingly, he had reported to him each month the time lost due to accidents so that he could observe any tendency toward negligence. The chart shows that the limit of 400 hours lost per month has been exceeded, but the executive believes that the steps he has recently taken will considerably improve the situation.

The chief executive knows that one of the strong desires of employees is for steady jobs and he has therefore done much to reduce his labor turnover. He has smoothed out the peaks and valleys of production in order to provide steady work and has maintained a good training service in order to enable his workmen to earn good wages. The chart shows that the number leaving and entering the employ of the company had both been below the limit set.

This chief executive had, of course, learned years ago that high wages coupled with good training and management help to reduce costs and he therefore aimed to bring up the average weekly wages of the direct workers in his factory to $45 per week.

The chart shows that the actual wages fell about 20 per cent short of this ideal, due principally to the fact that during the first few months there was not enough work to do. Conditions are better now and it is probable that by the end of the second half year the $45 mark will be reached.

The chief executive did not believe that it is inherent in the nature of a workman to soldier, but that he will do a fair day's work if conditions are right. Accordingly he had a daily record kept of the production of each workman compared with a definite standard, showing the reason why whenever the performance had fallen below the schedule. He has found that a majority of these delays can be avoided by good management and he has therefore come to regard the summary of these man-record charts as a fairly accurate indication of the worth of his supervisory organization.

Harnesses Cooperative Instincts for Mutual Good

The analogy between the modern executive and the general or commander-in-chief is an old one, and it is true up to a certain point. Both have their objectives clearly fixed, they marshal their forces for campaigns and coordinate the energies of those under their control. The old methods have passed and the modern general no longer gallops about the field issuing orders based on his own observation and verbal reports from his aides. He sits at a desk watching carefully prepared maps which show the terrain and every movement of troops and supplies. So the modern executive sits at his desk, watching a few lines on his control charts, noting each change in the rate of movement of his forces and issuing the directions needed to keep them under control.

There, however, the analogy ends, for the aim of war is destruction, while the executive in industry uses all his knowledge and skill in harnessing the cooperative instincts of his organization for the mutual good of owners, employees and the public.

It has often been said that the quality which distinguishes an American business man is his practical idealism. On such an operating control chart as this he sets down his attainable ideals and then concentrates his attention on their achievement.

SPECIFICALLY, the new industrial revolution which the inventors and administrators are going to bring about must make possible the increasing decentralization of industry.

It must stop the centralization of factories in a few big cities and the herding of their workers in slums.

It must regularize production and distribution and forever do away with the seasonal fits and starts, the alternate booms and depressions, that now disgrace our administrative intelligence.

It must solve the problem of unemployment for which the only remedy is continuous employment.

It must lay the ghost of insecurity that now haunts the mind of labour; and it must face frankly the effect upon workmen of the repetitive labour which machine production makes necessary. (Edward A. Filene, *The Way Out*, pp. 65-66.)

WHEN I use the term "industrial democracy" I mean that form of industrial organization in which the employees have an adequate voice in the determination and control of the conditions of work, an adequate stake in the results of work, and as near as humanly possbile a guaranty that the management of the business shall be efficicient . . .

I mean by the employees having an adequate voice that they should have the greatest degree of power it is possible to grant consistent with the continuing success of the business. The moment industrial democracy fails to sustain and increase the production and profits of an industry, it ceases to be valuable to the employees no less than to the employers. An "adequate" voice in industry must mean different things at different stages in a given industry. (Edward A. Filene, *The Way Out*, pp. 141-142.)

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Distribution a Governing Influence on Production[1]

The Sales Department Must Sell Factory Production to Maintain a Stable Operating Organization and Utilize Equipment at Maximum Efficiency

By G. DOUGLAS MERCER
The Flintkote Co., Boston, Mass.

DISTRIBUTION as a governing influence on production, which was the subject assigned me, can be approached from many angles. I propose to discuss it from the point of view of the sales manager.

A composite view of a sales manager would be something like this: His customer sees him as a well-nourished, likable, energetic individual who seems equally at home discussing the World Series, the Volstead Act and his own or other people's business. The treasurer sees him as always wanting more salesmen or more advertising, the money for which, he argues, would pay dividends. The factory manager sees him as a stupid person who insists on taking orders when the factory can't fill them, and who fails to get them when the factory needs them. To his salesmen he is a human machine who does not consider their comfort but demands orders, more orders, and still more orders, while to his wife and family he is the stranger who comes to dinner on Sundays.

The sales manager has his serious responsibilities. He is responsible for the financial administration of his department and he must see that his selling expenses are within his budget. He is also responsible to the factory for a steady flow of orders. He is its spokesman and unless the factory can impress him with its ability to deliver he will be unable to inspire his salesmen and they, in turn, their customers, with the confidence which breeds orders.

Some lighting companies maintain a lookout station perched on the top of a skyscraper. When the observer sees signs of an approaching storm he orders more power to carry the lighting load. The sales manager occupies a similar position in his company. He must be constantly watching for the storms of competition, buyers' strikes, or unbalanced business conditions. But he does more than the man in the lookout, for he must keep his lines of distribution clear and functioning freely. Unless he knows when and how to make use of the broadcasting power of national advertising to supplement the forces of distribution he will be unable to secure the maximum results. His efficiency depends not only on his selection, training and handling of his own men, but on his recognition of the problems of the business as a whole and his ability to coöperate closely with the production and financial departments.

As a cub salesman I found constant conflict between sales and factory without common meeting ground. The salesman tried to sell what the customer demanded and the factory tried to make what it felt should fill the demand. Today a successful concern supplies a genuine demand, or tries to create a demand for its products. A successful sales manager is not trying to secure orders in terms of dollars of goods, but is selling factory production in terms of tons, feet, ton-hours or machine-hours in order that a well-trained organization of operatives may be uniformly maintained and the existing equipment utilized at maximum efficiency.

For several years untrained, undirected and left to my own resources, I went through the usual period during which most salesmen wear off the rough edges and wear out the soles of their shoes. As an engineer, I began to question whether the more exact methods of that profession could not be employed in selling. In 1919 I went to the Clinton Wire Cloth Company where Keppele Hall was installing scientific management in the factory. The methods he used interested me, and since then I have tried to apply to selling a few of the principles of scientific management. To best illustrate the application of these principles let me take a specific case.

The company in question was an old concern whose products had a splendid reputation, but the competition of large scale producers, or those who specialized in the manufacture of single articles, was being felt. The principal articles made were screen cloth, netting and heavy woven wire, woven wire lath and welded wire fabrics for plastering and reinforced concrete. A study of the products showed that they could be divided into two sales divisions, one distributing through hardware channels and the other through the construction trade. There were other minor departments that could not be classified under either heading. In all there were about seven hundred producing machines that had to be kept continually employed. As scientific management was gradually installed the potential output was much increased. To fill the factory with orders it became imperative to build up an adequate sales department.

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[1] Paper presented at a meeting of the Cleveland Section of the Taylor Society, Monday, January 28, 1924.

The selection of a salesman requires time and care and he should not be employed unless he has been under observation for a considerable period. In order to succeed he must be industrious, intelligent, loyal and in good health. Unless he is industrious he will fail to appreciate the need of conserving his time, thereby increasing the number of his calls and resulting customers. Unless he is intelligent he will fail to modify general instructions to fit individual cases. Unless he is loyal a salesman soon joins the "stove league" of knockers. Unless he has good health he cannot sleep in a different bed or a sleeping car each night, digest a variety of foods and greet the next day and the next customer with a smile.

Having selected the men, we were ready to open our school. A sales manual had been carefully prepared, describing the manufacturing processes, the products and the limitations of each group of machines. One day a week was devoted to a discussion of selling, four days were spent at the factory and the sixth day in quizzes. At the end of five weeks the men had acquired a fair knowledge of the products and were ready for the field. It is my belief that a knowledge of the company's products—how made and used—is of more importance than a superficial training in selling methods, because the latter can be acquired by means of the case system of being turned down and trying again. A salesman can, however, be warned against such crudities as putting his feet on the buyer's desk, handing him cheap cigars or indulging in familiarities. His personal appearance, or even his education, may be improved by suggestion. I once saw a piece of constructive selling while waiting my turn to see the buyer of a jobbing house. Ahead of me was a salesman who handled a hammer with the skill of a virtuoso. With a deft stroke he drove a common pin into the top of a desk and then, reversing the hammer, extracted the pin as if it were a tenpenny nail. The salesman was Fayette Plumb, and his skill in handling the tools he was selling was a graphic way of showing the buyer what thousands of workmen could accomplish with such a high grade hammer.

We were next ready to set the individual tasks, or quotas. These were based on the possible consumption in a given territory. When a concern makes more than one product, the individual quotas for each article will keep the salesman selling his proper proportion. For an untried article, or one that does not have a repetitive sale, the quota is, at best, an approximation, but it does put the combined tasks of all on a very definite basis. For instance, one company's quota of $2,000,000 of orders for five months actually reached $2,010,000, a variation of one-half of one per cent.

The establishment of quotas produces keener competition among salesmen if the comparative standing is frequently distributed in graphic form. Orders are more vital to some salesmen if they think of them in terms of the number of machines or workmen they are keeping busy. The reverse point of view is sometimes seen. A salesman, who was home for a day or so, visited his factory only to be asked by the foreman why the hell he didn't get back on the road and book more orders so that the department could keep up its rate of production and earn a bonus.

Without a chance to make more than a mere living a salesman will not develop maximum efficiency; for most men want to know, "What is there in it for me?" The turnover will increase as the more ambitious men go elsewhere. Give a salesman a salary that will cover his average living expenses, and a bonus which depends upon the profits which he makes for his firm, and you will have an aggressive salesman and a contented sales organization. The successful salesman often becomes an investor in his company's stock.

Time studies cannot be made of a salesman in the same sense that time studies can be made of factory operatives; but a salesman's daily report of calls, orders and prospects furnishes a basis for valuable suggestions which will improve his efficiency. Two separate investigations mentioned in "Field Tactics for Salesmen"[2] show that practically three-quarters of a salesman's working day is non-productive and only one-quarter of his time, which is spent in selling, making out orders and adjustments, is productive. Some of my own men checked with their experience and found that even less time was spent in the presence of the customer. As a result of these findings the men planned their day more carefully. Further analysis of daily reports will show that a man is not out enough, due to too much detail work, ill health or sheer laziness. Or we may find that the ratio between actual orders and prospects opened is so small as to indicate poor closing ability, poor selection of prospects or keen competition. Lost order reports keep tab on competition and furnish a measure of the potential business in a territory.

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[2] Dartnell Corporation, Chicago.

It is important for salesmen who may be many miles away from headquarters to start out with a list of prospects, a definite route to follow and exact knowledge of what the factory can deliver. And while they are away the home office must keep constantly in touch with them. Scientific methods of distribution should also include a consideration of the potential market, of competition and of price. For example, in the case under consideration, a study was made of the market for screen cloth in terms of dwellings and of native white owners. Unfortunately, price was established by the low cost, or intramarginal, producer and had no relation to our costs which were sometimes higher than the prices. The market for poultry netting had moved westward, which made it necessary to take orders at the price set by the low cost, or intramarginal, producer until a quality article with a longer margin of profit could be developed. Wire lath was gradually being displaced by expanded metal, except for the highest class work, so here the price was based on a fair cost. Another article sold in competition with metal lath was priced a few cents under that product and afforded a handsome profit. In the perforated metals department improved methods of control showed that competitors were operating on average costs. Advantage of this situation was taken by making a scale of prices which decreased in proportion as the identical operation was performed over increasing periods of time.

From the foregoing I have tried to show you that sales planning which includes training, task and bonus, time studies and routing is just as necessary as planning for a factory. Careful sales planning helped one organization to increase its annual orders from one thousand to four thousand units per salesman.

In addition to sales planning there must be proper execution of the plans in order that the daily or seasonal orders be commensurate with the production schedule. It is as important for a sales manager to know where he stands each day as it is for an investment banker or a department store manager.

Granting that the sales manager has put his distributing machinery in proper alignment, the factory must produce goods of unquestioned quality at competitive prices or no plan of distribution, however spectacular, will permanently succeed. However, in some cases the two functions—distribution and production—fail to coordinate, even when both are properly organized, for there are external factors which may affect the success of a business.

Many manufacturers who built war-time plants have not scrapped them, but have branched into lines which compete with those of established concerns. This new competition has reduced profits and demoralized some industries for the time being.

In 1910 we exported 45 per cent of all manufactures, 33 per cent of all crude materials and 12 per cent of our foodstuff. The dislocation of export trade produced by falling exchange, financial prostration of European nations and artificial trade barriers has increased our domestic competition.

The deflation of 1920-21 reduced prices, but wage scales and transportation costs have not been reduced proportionately. The travelling expenses and salaries of salesmen, and the cost of advertising of various forms have remained at high levels. As a result serious consideration has been given to possible readjustments of marketing methods. Shall I sell from house to house as the Fuller Brush and Real Silk Hosiery Companies are doing? Shall I do business by mail? Shall I eliminate the jobber? These are questions which manufacturers are asking—serious problems for manufacturers who are making articles which do not have a repetitive sale, and whose cost at the factory door is frequently but 25 per cent of their price to the consumer.

Despite diatribes against retailer and jobber, they will continue to exist as long as they perform a legitimate function in distribution. Many manufacturers who have cut corners have done so to launch a new article or overcome the opposition of existing channels. Beacon Blankets were sold direct to department stores because of jobber opposition. It is probable that the selling cost of such manufacturers is as high as the cost of distribution through the middleman. Such manufacturers do control their own destiny more completely and, once established, there is no reason for changing. But for one manufacturer who is distributing direct to the consumer there are thousands who are using the established channels. Most of the complaints seem to come from the manufacturer whose product is difficult to move through jobber and retailer, or from the middleman who complains that the profit obtained is less than the middleman's average cost of doing business, forgetting that this average cost may be based on four turnovers a year, whereas a fast moving article may turn seven or eight times a year and so really be more profitable.

Higher wages and a better scale of living have increased the demands of the consumer. This has brought with it a discrimination which has hurt the manufacturer of shoddy goods. On the other hand, a number of makers of luxuries have suffered from competition through substitution. Many people buy plated ware who formerly purchased sterling silver, or ready-made in place of custom-made clothes. However, in every industry there has been at least one leader who, through skillful management, has made money during good and bad times.

Advertising since the days of P. T. Barnum has become a respectable member of society and must, of course, be reckoned with as a distributing force. But I can barely touch on a topic which could, of itself, be the subject of a paper on distribution. When a solicitor for the Curtis Publishing Company I saw its value and learned that national advertising is a high-powered salesman who needs skillful handling. Since then I have used it successfully as a selling force. A few concerns who have made authoritative statements about their sales costs have said that as their advertising increased the selling cost per unit decreased. No manufacturer with a high cost or inferior merchandise can expect advertising to raise him from the dead. Neither can those who lack patience or surplus cash expect that their one plunge will bring real returns. A director of one of the large soap manufacturers said that to his surprise their business showed profitable increases in proportion to the amount of national advertising.

I believe that many concerns will find that the profitable solution of the problem of distribution and production rests on the production of a larger volume of goods at a moderate profit, rather than on a limited volume at a large profit. In the automotive industry, Ford, General Motors and a limited number of other concerns are giving real values as a result of quantity production. In the packing business giant concerns convert livestock into food products and distribute them at a few cents profit on the dollar.

"But how shall I increase my volume without spending more money for selling?" is the question. It is the old quandary: "If I had more business I could afford to employ more salesmen to get more business." One way out is by lowering the price so that the increased volume may be secured. "'Suicidal," you probably say, but perhaps you will agree with this—that if a number of people prize a commodity differently a fall in price will enable more individuals to gratify their desire. For example: I have $20.00 with which to purchase either a Victrola, a tire for my automobile or a suit of clothes. Each was priced $25.00 but suits are now reduced to $20.00 while the other articles remain at the higher price. Which do I purchase if there is an equal desire on my part for all of these articles? Again you say, "But how can I reduce my price before my costs are down?" Costs are made up of labor, materials and overhead, all of which can be reduced per unit if the output is increased and more efficient methods are introduced. Suppose a factory has been producing 100,000 units and it is found to have a capacity of 150,000 units. If the output should reach 150,000 units the cost will decrease 20 per cent. It is believed by the sales department that a reduction of 10 per cent will bring out the increased volume. In an active market a reduction of price up to 20 per cent will bring out an increased volume and also greater net profits to pay for the venture. Take two illustrations: In the first case a limited volume of a high priced product was being sold and its volume was slow to increase. This volume took only 40 per cent of the potential output. At the same time there was a large demand for a similar product which could be produced with cheaper materials in less time. The cheaper product had to be sold at a price which covered only the cost of the material and the actual cost of manufacture. There was no surplus to cover general overhead or profits. It was decided to take orders for the low-priced material at competitive prices and inside of a year the department had been brought up to 80 per cent of its capacity. The economies of manufacturing a greater volume effected a small profit on the highly competitive product and a larger profit on the high-priced one. In the second case a department had a potential capacity of 300,000 units and an output of 100,000. In an active market it was found that the sales could be increased to 200,000 and next to 300,000 units by selling at prices which would have been justified by the actual production. Producing at the rate of 100,000 units we lost money through underproduction. Producing at the 200,000 rate we broke even by absorbing the overhead, and producing at the 300,000 rate we made a small profit through factory economies. When we reached 300,000 units the factory told us that they could produce 1,000,000 units, due to the knowledge gained from the factory forcing process. The sad joke was on us.

Henry Ford says, "Our policy is to reduce the price, extend the operations and improve the article. You will note that the reduction of price comes first. We have never considered any costs as fixed. Therefore, we first reduce the price to a point where we believe more sales will result. Then we go ahead and try to meet the price. We do not bother about costs. The new price forces the costs down . . . The low price makes everybody dig for profits. We make more discoveries concerning manufacturing and selling under this forced method than by any other method of leisurely investigation."

The doctrine that lowered price will bring out increased volume, although such a price may not be jusitfied by the then existing costs, may seem radical, but I have applied it in actual practice and have seen it work out successfully. I can hear you say, "But where will my net profits go if I follow such a wild plan?" But I maintain that unless labor, machinery, land and buildings are more and more efficiently employed a manufacturer will not even obtain the gross profit which represents the wages of management, plus interest on the money invested. James H. Bliss in his book, "Financial and Operating Ratios in Management," shows that 93 representative concerns earned only 7.2 per cent on their sales in a 6 year period dating back from 1921. One hundred and twenty-two Companies from 1914 to 1921 earned only 8.5 per cent on their net worth. Of 250,000 concerns investigated by the Federal Trade Commission a few years ago, one-half operated without profit and only 5 per cent of the remainder had an accurate knowledge of costs. If large and supposedly well-managed concerns are operating on such a small margin of profit what may a concern whose organization creaks at every joint expect in the way of profits? An old-time treasurer recently said, "We used to expect 15 per cent net on our sales; now we try to make 10 per cent." The mental attitude of the manufacturer who blames his associates and general conditions because things are not as they used to be reminds me of a Christmas experience. In the role of Santa Claus it was necessary for me to repair an electric locomotive for use on Christmas morning, but, unfortunately, I put the body back on the truck so that the headlight pointed toward the rear and the tail-light to the front. And, although the locomotive would run, my youngest son was so disturbed that I had to remedy Santa Claus' error before the locomotive was permitted on the track. Many manufacturers make the mistake of having their headlights focused on the past.

There has been much talk about the deflation of wages. A deflation of war-time ideas and a clear understanding of economic principles is even more necessary. There are concerns who have no economic excuse for existing. The business man who argues that the world owes him a living simply because he is in business may be disappointed. Successful business today depends on the soundness of its management which, either by chance, or through understanding, relies on economic principles.[3]

In a pastoral age a few of you would have been sitting tonight behind the lee side of a rock awaiting a possible attack on your herds while the rest would have been asleep in huts devoid of heat and light. But, living in an industrial age, we all have problems of production and distribution to consider. And I believe that the principles of scientific management can be as profitably applied to a sales organization as they have been to production. Further, that even when both distribution and production are efficiently organized, the operations of a business cannot be successful unless there is close cooperation at every step between distribution, production and finance.

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[3] For the following statement of these laws I am indebted to Dr. E. V. R. Seligman in his "Principles of Economics."

"All wealth that is created in society finds its way to the final disposition of the individual through certain channels or sources of income . . . . If everyone consumed what he individually produced there would be no exchange, no price, no distribution." Again, "'Competition, therefore, is not simply a contest to divide an existing sum, but a struggle to share in an increasing stock, and the first requisite of securing an additional share is to produce more. In this struggle to dispose of the increased product to the whole body of consumers, the victory will lie with those who can create better and cheaper products. Thus, competition as a business principle means a struggle to augment wealth through a lowering of cost." And again, "Profits are always a surplus." "Profits are the surplus of the intramarginal (low cost) over the marginal (high cost) producer . . . . It is evident that in the long run profits could not exist in a state of normal equilibrium. In actual life, however, there is continual change,—population varies, wants are modified, capital increases, the process of industry and methods of enterprise alter. Competitive profits are due wholly to such changes. He who can take advantage of the market secures the gain."

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The Interdependence of Production Engineering and Merchandising[1]

By RALPH E. RINDFUSZ
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FROM the experiences and observations many of you have had you probably think it would be more appropriate if my subject were "The Inter-Independence of the Production Engineer and the Sales Manager." The aims of the two often seem to be so divergent that it is difficult to appreciate that both are working for the same company. Nevertheless, it is clear that the success of either is dependent upon the success of the other.

The production department sets up as its ideal manufacturing methods completely simplified, from the purchasing and storing of raw materials, through production to the stocking of finished goods and shipping. They want a simplified line with few items, each manufactured on a mass production basis. To them the benefits of such a program seem so obvious as to leave no ground for argument. Look at Henry Ford.

On the other hand, the sales department says, "You must give the buyer what he wants. We have been in business a long time and are not yet at the position where, like Henry Ford, we can hold the whip hand over our distributors. We do not even have much business on our own brand and therefore must manufacture what may be ordered. Our competitor will give the customer just what he wants if we don't, so the only effect of our stubbornness would be the loss of business."

The manufacturing department replies that the sales department is letting everybody run their business but themselves, and urges that they decide what can be made most effectively, stick to it and put it up to the sales department to go sell it. They probably add that a salesman always wants to have the best goods, the lowest price, quickest delivery and longest terms.

To this the sales department replies that they know the market—they can sense it somewhat in advance with its whims and changes. "Therefore we must make what we can sell and make it at a price to meet competition." They probably add "Why can't you manufacture as cheaply as our competitor and make anything he can? Why can't we have as satisfactory a stock on hand to meet demands? You don't give us support to enable us to get business."

And so the matter goes up to the general manager. Since he sees the need of having sales to keep money flowing into the till, he probably concludes that the manufacturing department needs strengthening. So he calls in an engineering concern to effect the economies in manufacturing that will enable the sales department to get business.

The outside engineer soon finds the cause of the trouble: a multitude of items, brands without end or meaning probably chiefly owned by distributors, equipment constantly shifted and replaced to meet changes in the style of the product or fluctuating demands, orders on the feast and famine basis. Along with this naturally have come all the attendant inefficiencies in labor, dead or slow moving stocks, poorly adapted machinery, and the rest of the category of waste so common in this type of manufacture.

The engineer can tell quickly what ought to be done. After a survey of plant possibilities, he submits his plan for simplification. He wants a limited number of products, one brand, few items, and mass production on each. He shows how a comparatively small investment in machinery changes will greatly increase production. He demonstrates that a 10 per cent increase in output on a machine running 75 per cent capacity will double the net profit from the machine. By his studies of particular processes he shows how the efficiency of the labor can be improved.

But every one of these recommendations involves and depends upon the marketing problem. Can orders be concentrated on the limited number of items of this simplified line? Can business be increased to take up the additional output? Unless it can be, machinery improvements are only added overhead. Efficiency of labor and profitable returns can never be gotten from equipment idle for orders. Can the demand be brought to the manufacturer's own brand? Unless it can, the production of whatever the customer orders whenever he orders it must go on despite its waste.

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[1] Paper presented at a meeting of the New York Metropolitan Section, May 15, 1924.

In brief, in very many cases unless the marketing problem can be solved there is no opportunity to realize on the work of the engineer. That these problems often never are solved explains why so many excellent engineering surveys and efficiency plans lie unused in the company files. To one on the outside, it seems perfectly clear that the engineer, whether he will or no, must become interested in the marketing problems of his client. The first question is, Is the sales manager right in his statement that you must give the buyer what he wants? Since you are all buyers, you can answer it for yourselves. Do you want the clerk to give you what you want or something else? Obviously the sales manager is correct, and any attempt to sell what is not wanted will meet with such resistance as to be unsuccessful.

However, the truth of the sales managers' creed of filling the wants of the buyer in reality offers us our opportunity. What does the buyer want, and how does he come to want it? Again shifting our position on the stage so we think of ourselves not as engineers but as buyers, we can answer that question. We want what we know about. In cases where we are not informed concerning the goods we have to buy we are anxious to have them explained to us so that we can buy intelligently. In other words, the manufacturer who has goods that are worthy can create a desire and demand for those goods by telling the consumers about them. When this is done he has created a market that is peculiarly his and is subject to his control. His goods are then bought on knowledge and not chance. For example, in the large field of silk goods manufacture, subject to all the whims of style, William Skinner and Sons have isolated a part of the market as theirs and have held it over a long period of years on a staple article called Skinner's Satin.

How, then, can a manufacturer go about it to secure the control over such a market? If the number of consumers of his goods is small, obviously he can put on a competent sales force to tell the story of his goods. The manufacturer, however, must not confuse consumer with buyer and think that just because he has a small number of customers on his books they constitute his market. His market is the actual consumers of his product.

If, however, the number of consumers is large, as in the case of any article of general consumption, the manufacturer will see at once that the cost of attempting to tell his message by word of mouth to each of the people to whom his sales story should go would be prohibitive. Having reached this conclusion, the manufacturer often does a very strange thing. Since he decides that he cannot afford to hire men to go tell the people directly, he hits upon the plan that he will tell his salesmen, have his salesmen tell the jobber, who shall tell his salesmen, who shall tell the retailer, who shall tell his clerks, they in turn informing the consumer about the merits of the manufacturer's goods. It would be a very analogous case if a shoe manufacturer found that he was not equipped with machinery to put heels on the shoes, did not want to equip with such machinery and felt that it would be too expensive to hire the labor to tack the heels on. This shoe manufacturer might conceive the idea of having his distributors put these heels on for him. Of course, the plan would be a failure for two reasons. First, that it would cost just as much or more for the retailer to hire these heels put on by hand as it would for the manufacturer, and the prohibitive cost would have to be passed on to the consumer just the same. Second, the job would not be so well done as though the manufacturer did it himself, since it is not primarily the work or the responsibility of the retailer. This is exactly the case where the manufacturer passes on to the distributor the duty of explaining his goods by word of mouth. Little or nothing is saved from the cost that must be met if the manufacturer tries to tell the story himself to each consumer, and the job will not be well done. Imagine leaving it to the clerk to put the proper sales promotion behind each of the hundreds or even thousands of articles handled by any one of the ordinary retail outlets. How often do we have a drug, a grocery, or a department store clerk attempt to explain to us goods concerning which we did not ask?

Obviously, then, the marketing solution lies in mass selling just as production calls for mass manufacturing. Fortunately the manufacturer can call to his aid in selling his goods the same skill the engineer gives him in production. The advertising agent of today—the name is really an anachronism and might better be marketing engineer—operates very like the engineering concern. He brings to the manufacturer the benefit of a broad experience in various lines of marketing, together with a technical knowledge of methods and media, and a rounded personnel for complete service. He attacks a problem just as the production engineer does—on the basis of facts first, then action. He first makes an analysis of the market and the possibility for the article offered. He isolates resistance that must be met so that his activities may be directed against the real problem. For example, an agency started out to analyze the problem of a manufacturer of canned beans. They found that 60 per cent of the potential market did not eat baked beans, 20 per cent preferred to bake their own, and 20 per cent bought canned baked beans, the client having half of this percentage. This client had been exerting his effort against the competition that held the other 10 per cent of the potential market, whereas eight times as much opportunity lay before him in promoting the idea of eating canned baked beans among the other 80 per cent of the market.

Following this market analysis and isolation of resistance, the agency prepares a plan just as the engineer does. It then carries on a test campaign just as the engineer tries out his plans on a small scale before putting them into the whole plant. Satisfied with this, it proceeds on the plan.

The big question is, Does it work? The answer can be found in your own observations. Of the nationally-distributed, nationally-known trademarked goods, practically all are advertised and advertised in the national magazines. Recently a question was put to the editors of "Printer's Ink" as to whether there was any known case where a manufacturer of a nationally-distributed product of general consumption had been able to change from private brands to his own brand without the use of consumer advertising. Their answer was that no such case is known.

It is, however, easy to point out well-known cases where the change from the manufacture of a complex to a simplified line and from jobbers' brands to the mill's own brand have been accomplished by the use of consumer advertising. For instance, the Hammermill Paper Company brought this change about several years ago and now makes little except their well-known line of Hammermill papers. Fayette R. Plumb, Inc., the well-known tool manufacturer, since the close of the war has been able to change his business from practically all private brands to 80 per cent his own brand. At the same time, he has reduced from 2752 items under 200 different brands to 761 items. He has increased his business and gives better value for the money. The Certainteed Products Corporation, by explaining their goods to the consumer through magazine advertising, by labelling them so they could be identified, has made it more advantageous for the jobber to handle the mill's branded goods than his own, so that their business has been swung to their own brands. Even in women's dresses we have the case of the Goldman Costume Company, Inc. By creating the Betty Wales models and advertising them in the magazines, they have been able to shift from 1500 different styles under any kind of label to their own brand with 4 series of about 50 styles in each. Incidentally, it might be pointed out that their advertising costs are approximately 3 per cent of sales. A similar story might be told of the Martex Towels, the Florsheim shoes, the Brenlin window shades, the Scott Paper Company's Thirsty Tissue, and the General Cigar Company. This last, for example, by advertising was able to reduce from 152 brands to but 5 brands. Simultaneously, their sales increased one-third despite the growing popularity of the cigarette. Time only limits multiplication of such cases.

In conclusion, the following points seem clear:—

First: Just as the sales department must have efficient manufacture back of it to enable it to meet competition, so must the manufacturing department have competent marketing to allow it to operate effectively.

Second: Wherever the distribution of goods is broad the manufacturer must employ mass selling methods just as he does mass manufacturing.

Third: The avertising agency of today operates to bring the same effectiveness and scientific methods into marketing problems that the engineer brings into manufacturing.

Fourth: Experience has shown that it is only through the application of these scientific principles to mass marketing that it is possible for the manufacturer of a widely distributed product to gain control of his own market, and, therefore, of his own manufacturing.

Scientific Management in Germany

How Taylor Methods Have Taken Hold Since the War

By **EDUARD MICHEL**
Consulting Engineer, Berlin[1]
Translated by H. FELDMAN, Hanover, N. H.

UNTIL recently only a few industrial leaders or factory managers in Germany have known of the existence and the progress of scientific management. My book of a few months ago, "The Planning of Work"[2] was planned to present a comprehensive outline of the subject and show what could be known and should be known generally about scientific management.

The customary conception of the term scientific management is that it denotes certain fundamental principles of quite general application, these to be adapted individually to different types of businesses. Some people, however, are spreading the idea that in the management of industry, so far as questions of organization are concerned, there are many ways to Rome; and each seems to believe that his particular method is for him the only proper one.

The idea that one's special ability and experience enable one to establish an undeniably exceptional case is a characteristic widely observable in daily life. When we consider the fact that with few exceptions the managers of our factories are too busy to make themselves familiar with the scientific side of their profession, it becomes clear that the average manager lacks the critical, objective attitude of mind, even though he may have a detail knowledge of his special branch of work. The fact that the management problems of a mine are only superficially different from those of a chocolate factory or a laundry seems so grotesque a notion that it gets little recognition. The possibility that such extremely different branches of industry may be provided with a form of organization essentially identical and with the same types of managerial direction and methods of production undermines the foundations of all ordinary understanding.

One who has the opportunity to gauge the mental attitudes of the technical managers in the various industries finds a similarity of opinion concerning questions of wages, working hours, policy towards trade unions or government agencies, taxation, health insurance and other matters of social legislation. But if one inquires by what means the hand workers or the machine workers, for example, have their daily tasks planned and apportioned, what provisions must be made in order always to have the tools handy and what guarantee is given the worker that his performance will be justly remunerated—all requirements which are fundamental management conditions necessary anywhere—then a Babylonian confusion is produced by the wide variety of answers.

The reason for these differing answers is that a standard method of operating and directing a business concern is neither recognized nor desired by any large number of industrial leaders. The unconscious antipathy towards everything new with which the individual comes in contact, the contentment with things as they are, often also the unquestioned financial success achieved with the accustomed means—in a word, inertia—forms the primary defense, the protective wall against new ideas. If the head of a factory of several thousand workmen, as for instance the manager of a weaving mill, is told that his concern could by scientific management be organized in exactly the same way and provided with exactly the same method of procedure as a foundry or a machine shop; or if he is told that scientific management today is ready and able—and can prove this by practical examples—to use a standard system of organization, of scheduling and dividing the work and of making time studies, whether a factory employs 25 men or 5000, and whether it is engaged in single, serial or mass production; then the demand upon his understanding is so great that he is glad to escape to the struggles with daily petty details of the business.

And science? Our technical institutions? One must say with shame that in the art of production, in the development in an orderly and scientific way of systematic and fundamental methods, in the solution of a great many complicated questions which the management of industry entails, few have succeeded to date. The possibility of being able to employ definite, standard functions of industrial management in all branches of industry has remained as good as unknown. Empirical initiative is still triumphant all along the line, and the methods of managing concerns even today border in most cases on the mediaeval.

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[1] Author of "Wie macht man Zeitstudien" and "Arbeitsvorbereitung."

[2] V. D. I. Publishing Company, Berlin, S. W. 19, 1924.

We must not forget that the government, because of the critical condition of industry, has been very active in promoting economical production. However, economical production, which is everywhere sought for, is quite a different thing from economical management. Almost anything can be done with excellent machines, good tools, well-designed means of transportation, wage-saving time studies—a moderate amount of managerial mechanisms—but to combine all these elements in a predetermined, systematized method of operating, to inject forcefully and continually into the stream of directed energies that vigor, devotion and zeal of the general management which is so necessary for the best results—to this few outside of the Taylor school have given attention.

Nevertheless, it is infinitely more important to be able not only to use machines, tools, workmen, mechanical energy, heat, raw materials and the many other aids to production in the best and most economical way, but also to know and use means and methods of making the whole effective, of bringing them all into a well-timed and well-unified harmony. Let us not be mistaken. The perfection of the mechanical means, or even of the psychological ones, has progressed to a far greater degree than has the scientific utilization of these through a planned control from a central point to secure a well-timed coordination of the material, mechanical and psychical elements. To be sure there will remain in the final analysis a residue of bothersome details which can handicap management; nevertheless the general question "How can I manage a factory most advantageously?" absolutely demands its answer. It is so tremendously urgent that a few words outlining the solution are in order.

In brief, the whole matter is one of centralized direction, with everything carefully thought out in its details and emanating from a center which serves as a starting point for the movement of all elements in production. Nature shows us the best solution in the evolution of its living cells. In these the centralized nervous system embodies in the most perfect way the idea of centralized control, and it is too trite to say that the central nervous system of a living organism, of an organized unity, is the less developed the lower the stage of intelligence. Modern factories with large spaces, power plants and masses of workmen, directed by a handful of engineers and managers, make me think of prehistoric, gigantic living organisms which in an enormous body possessed only the brain of a bird. Perhaps the comparison is lame in favor of our monsters, for it is a humiliating fact to the specialist that in the plans for a new factory 95 per cent of the space is provided for physical labor and only a fractional part for the preparatory intellectual work, while to many architects and entrepreneurs the idea of a factory planning office seems still to be entirely unknown.

Unfortunately, as has already been stated, most managers lack the art of untangling the fine threads of direction and of bringing them together in a well knit whole. It is to be observed that the manager who might be inclined to expand his force of indirect workers, without having the right kind of organization and set-up, would come to grief. Undoubtedly, it is among the most difficult tasks of a factory management to ascertain the right internal organization, and it would be unfortunate for progress if everyone were allowed to choose and to employ those means which are in his opinion advisable. Here scientific management comes to our aid, to separate the fundamental sharply from the special, and therefore to establish the former, all difficulties notwithstanding. Scientific management shows us how it is possible to obtain a considerable increase in work and cheaper production with an enlarged indirect staff.

This centralization will have to be worked out in greater detail the more varied production is, as when it involves the manufacture of a diversified line. Conversely, if a small variety of product or if only a single type is to be produced, then the indirect element in production activities decreases until with only one type the total effort may be concentrated directly upon that, so that the overhead of indirect labor required by diversified production is no longer involved. Where the limits should be drawn here, whether a plant needs a planning room, an internal conveying system, gang work, these are questions which belong partly to the methods engineer, and partly to the mechanical engineer. In no case should industry allow itself the luxury of calling upon the purely mechanical engineer in matters of organization.

This is an indication of the out-of-date method with which plants attempt to build up their internal organization and procedure. It is superfluous to say that the development of management methods according to the principles of scientific management requires a considerable measure of experience in observation and practice and knowledge of men—qualities which that group of managers whose experience has been specialized in purely executive or engineering lines rarely possess in the necessary degree. To allow vanity or ambition to dictate that one must do everything oneself is a fault which avenges itself the more because a half-organized plant is worse than an unorganized one.

I have come to know many plant managers during the past few years but seldom have I come across one who would have been able to organize his factory himself according to the principles of scientific management. The opportunity to use one's experience in this profession has only recently arisen, so that we may regard with gratitude those firms which have undertaken to help in putting into practice the ideas discussed above.

It may be interesting to note the extent of the development of the application of scientific management in Germany. There now exist plants in chemical, miscellaneous electrical, textile and miscellaneous metal industries which are completely organized according to Taylor methods.

The number of employees today whose work is controlled by symbolized time cards is from 10,000 to 15,000, a number which is considerable under present conditions, since the German Taylor practitioners were not able to undertake this work until after the war. In their work they are leaning heavily on American experience as far as it may be ascertained. Because of the complexity of modern fabrication in Germany, the control of work in division of labor, and particularly the principle of scheduling work in orderly sequence of batches, have been highly developed independently of America. This has solved the problem of control of parts involving short time operations. This solution of the problem of orderly scheduling of work, together with other aspects of control in division of labor, has effected a substantial acceleration of the movement of materials, so that the early charge that Taylor methods might cause a confusion and congestion of materials has been effectively disproved.

In conclusion it may be said that scientific management in Germany can show real progress. The development proceeds slowly but steadily. At this time an increasing number of firms are engaged in developing it. The usefulness of the system has been proved all along the line. Advanced and technical schools have begun to include the subject in their curricula and to establish seminars and laboratories. A corporation for professional work in management engineering has been established in Berlin. It is to be expected that scientific management will be developed much more widely among German industries during the next few years.

IF THE savings from delegating managerial detail involve delegating no managerial discretion and demanding none of the managerial type of initiative on the part of the subordinate, they are a danger rather than a source of strength. If "economizing managerial ability" means getting on with a smaller percentage of it than before, it is well-nigh suicidal in the long run.

The concern may "economize" in that way, if it is willing to take the consequences, but can industry as a whole do so? This would mean either developing less than before of that grade of ability which can make decisions, or not using all that is developed, which would come to the same in the end. Either one would be equally preposterous as a goal toward which to direct a conscious social policy. Society cannot save by employing less of this grade of ability, but rather by developing more. And whatever is unavoidably necessary for society is good industrial policy. Management cannot afford to intrust executive work to those lacking executive ability, nor to delegate it in a way which deprives the managerial agent of all executive discretion and responsibility. (J. Maurice Clark, *The Economics of Overhead Costs*, p. 125.

News of the Sections

New England

THE March meeting held in Worcester, March 25, featured an afternoon visit at the plant of the Washburn Company, manufacturers of wire goods, and an evening session on "Scientific Approach to Distribution Problems" with B. A. Franklin, President of the New England Section, presiding. The following short talks were presented: "Scientific Management from the Viewpoint of the Manager" by Reginald Washburn, The Washburn Company, Worcester; "Market Analysis" by G. V. S. Carroll, the Dennison Manufacturing Co.; "Simplification of Products" by William R. Moore, Norton Company, Worcester; and "Methods of Compensation of Salesmen" by J. J. Slein, Graton & Knight Manufacturing Company.

The last meeting of the season was a conference on Unemployment held at the Chamber of Commerce Building, Thursday, April 30, in cooperation with the Associated Industries of Massachusetts and the Retail Trade Board of Boston. Speakers at the afternoon session included H. S. Dennison of the Dennison Manufacturing Company, presiding; Joseph H. Barber, Walworth Manufacturing Company, Boston, "How Statistical Control Helps in Stabilization"; Seth L. Bush, Crocker McElwain, Holyoke, "How our Labor Contracts Helped in Stabilization"; J. F. Tinsley, Crompton & Knowles Loom Works, Worcester, "How Our Savings and Pension Plans Helped in Stabilization"; Joseph M. Towne, National Blank Book Company, Holyoke, "The Need for Standardization in Our Industry." At the evening session H. S. Person presided and the following spoke: Professor M. T. Copeland of Harvard on "Methods of Distribution"; Lew Hahn of the Retail Dry Goods Association on "Trade Relations"; H. S. Dennison on "Interrelation Between Distribution and Business Stabilization."

New York Metropolitan Section

The New York Metropolitan Section held its March meeting in the Engineering Societies Building with an attendance of over one hundred. The address of the evening by Wallace Clark is printed on page 105.

The April meeting was a dinner meeting in the Town Hall Club, April 16, attended by over 150 members and guests. President Percy S. Brown presided and William H. Leffingwell presented the paper published on page 96.

The New York Southern Tier Section

Interest and attendance in the New York Southern Tier Section continue at the usual high level. C. E. Killinger, General Manager of the Willys-Morrow Company, addressed the March meeting on "Standards" and Robert J. Andersen, Industrial Engineer, The Bowen Products Company, spoke at the meeting April 13 on "Why Systems Fail."

Central New York Section

The Central New York Section resumed activity, after the February blockade of the blizzard, with a meeting March 12 at which Edward M. Johnson talked on "Human Engineering."

Robert T. Kent, Superintendent of Prison Industries, State of New York, addressed the Section April 10 on "Management in the Prison Industries." The announcement of the meeting contained a suggestion that wives of members who drive automobiles as they tell their wives not to drive them might have more than a passing interest in the subject but no report has come to headquarters concerning the attendance attracted by this notice.

Mr. Kent described the particular problems in the prison industries, and the progress which has been started by the introduction of good management methods.

Student Branches

University of Pennsylvania

The Student Branch of the Taylor Society at the Wharton School, University of Pennsylvania, Philadelphia, submits the following report:

"This is the third year for our Student Branch and promises to be the most successful year of its short existence.

The activities of the Society are broadly divided into two main divisions—first, informal talks by industrial executives on everyday management problems, and secondly, talks by the members themselves on management subjects of which they have made careful studies.

At one of the meetings, Mr. A. G. Coffin, Philadelphia representative of the Babson Statistical Organization, addressed the society on "The Outsider's View of Management Problems." Although the meeting is scheduled officially for one hour, an hour and a half over the regular time was taken up by asking Mr. Coffin questions concerning forecasting and the present status of industrial management.

At another meeting Mr. Sylvester, a graduate of the University of Pennsylvania and now Industrial Engineer of the Atlantic Refining Company, talked on "The Place of the College Man in Industry."

A number of plant executives are scheduled to speak to the society in the short time remaining and it is hoped that we will have the pleasure of hearing one or more of the national officers of the Taylor Society before the end of the term.

The officers elected to serve for the remainder of the year are J. King Evans, President and John G. MacDonald, Secretary and Treasurer.

Harvard University

The Harvard University Student Branch has elected the following officers: Harold H. Tayntor, President; James M. Maurer, Secretary; and Clifton N. Bradley, Treasurer. Meetings are held every two weeks. Recently the speakers have included Lillian M. Gilbreth, Col. George D. Babcock, John H. Williams and Henry S. Dennison.

New York University

The New York University School of Commerce students have organized a branch with Alan T. Hudson, President and Lawrence Starr, Secretary. Meetings have been addressed by C. L. Barnum, Lillian M. Gilbreth, Ralph E. Rindfusz and John H. Williams.

International Industrial Welfare (Personnel) Congress

Members of the Society interested in Personnel Problems who are planning to be in Europe in June are invited to attend the International Industrial Welfare Congress in Flushing, Holland, June 19 to 27. This Congress is organized by an Interim Committee appointed by an informal congress held in July, 1922, which was attended by representatives of eleven countries. Louise Odencrantz, who attended this 1922 Congress, will represent the Society at Flushing.

The subjects to be discussed include "The Stage of Industrial Welfare (Personnel) Work" in each country represented, "Industrial Law in Relation to Welfare Work," "Industrial Problems of the Far East," "Employment Management as a Condition and Means to Efficiency," "Vocational Selection," "Industrial Fatigue" and "The Individual in Industry."

The preliminary program includes papers from Holland, Belgium, France, England, Germany, Sweden, Switzerland and the United States. Further details may be secured by anyone interested from the Secretariat, Miss M. L. Fleddérus, Glassworks, Leerdam, Holland.

Reviews

Principles of Merchandising. By Melvin Thomas Copeland, A. W. Shaw Co., Chicago, 1924, pp. xiv, 368. (658.8)

So simply and graphically does Prof. Copeland present the principles of merchandising that the reader's first thought is likely to be: These principles are obvious and it was unnecessary for me to read this book to discover them. Such a thought pays Prof. Copeland a very high compliment, because to present a complicated subject in such a manner that the reader regards the conclusions drawn as his own ideas, is the acme of pedagogic skill and logical analysis. The sophisticated reader will not be long in appreciating the comprehensive knowledge of merchandising practise and the clean cut analysis which made it possible for the writer to reduce this intricate subject to such simple and self-evident principles.

Prof. Copeland begins by dividing all commodities into two groups, consumers' goods sold for retail distribution, and goods sold for industrial distribution. The former consist of articles sold directly to the consumer, and sold usually for the last time. The latter consist of goods usually used as a means of further production and sale such as raw materials, machinery, etc. This distinction alone, it is shown, makes necessary quite different methods of marketing.

Consumers' goods are further subdivided into *convenience* goods, such as groceries, toilet articles, and all those items which are purchased on the basis of convenience and accessibility; *shopping* goods, those seasonable commodities, novelties and small wares of which each consumer desires to have a variety from which to make a selection; and *specialty* goods such as men's clothing, shoes, phonographs, automobiles, for which the purchaser selects a particular retailer on grounds other than mere convenience and price. Each of these groups is discussed in a chapter which describes the marketing methods peculiar to it, and many specific examples are used to illustrate the principles announced.

Incidentally, the book in its entirety is a testimonial to the case method so fully emphasized by the Harvard Graduate School of Business Administration. This method brings to the faculty as well as to the students a wealth of concrete facts and problems which is naturally reflected in the enriched content of its written output. Among the many interesting facts to be found in Prof. Copeland's book is a series of charts showing the proportion of net profit, operating expense, and cost of merchandise, to the price which the consumer actually pays the retailer.

Such subjects as Consumers' Buying Motives, Buying Motives for Industrial Goods, The Sales Force, Advertising Turnover, Price Policies are treated in separate chapters. In each discussion the underlying principles at stake are brought forward.

One who is accustomed to the nice points of writing may be mildly curious over Prof. Copeland's failure to mention anywhere in his book the conclusions reached by other writers on the same or related subjects. It is not likely that he considers all his principles as so original or so final that reference to such authorities on marketing as Ralph Starr Butler, Paul Nystrom, etc., etc., would be beside the point. Whatever his motive, it is refreshing to pick up a book in which the writer does not encumber himself or his readers with the many similar or different opinions which others have expressed before him.

Because of its concrete and graphic treatment, its lucidity, and its logical arrangement, the book is particularly well adapted for use as a text in schools of business administration. However, even the experienced merchant will probably find it helpful. It is quite likely to enable him to crystallize problems and ideas which have hitherto been in that state of fusion which is partly confusion.

HENRY C. LINK.[1]

Economics for Everyman. (An Introduction to Social Economics.) By James Edward LeRossignol.[2] Henry Holt and Company, New York, 1923, pp. 335. (33)

"I have tried to present the economic life of man in its proper setting as part of a broader social life and movement, with its historical background and its foreshadowings of change in time to come. Here is, therefore, not merely a static photograph or cross-section of economic conditions as they are today but a sort of moving picture of a living and growing organization, which has come up from small beginnings and will continue to grow and develop, although very likely, along the same old lines. The plan is not of any man's devising; and the end no man can foresee," says the author in his preface.

As one result of the worker's education movement we have and we will continue to have a number of books written for use in worker's classes. As a rule those who are experts in a particular field of knowledge are incapable of translating this knowledge into the language or thoughts of the masses. It is highly probable that the qualities of mind which produce an expert precludes him from doing this. LeRossignol's "Economics for Everyman" is no exception to this rule. As an elementary textbook for students of economics who possess the ability to think in symbols or handle ideas, it is excellent from the standpoint of organization. It is well written and contains a wealth of facts and examples to illustrate the numerous divergent points of view concerning economic policies. While the preface states that the book is not "a static photograph —but a sort of moving picture of a living and growing organization," it is a disappointment to one who has the dynamic point of view. While the reader will escape from getting the attitude that economics is a dismal science, the author will not let him escape from the laissez faire viewpoint. The last sentence in chapter XXIII (Economic Improvement) is a quotation from Sir Thomas More—"All things will not be well until all men are good, which, I think, will not be this long time." This seems to reflect the author's economic point of view throughout.

A very adequate index which contains about 800 items does not mention the topic Scientific Management, or the names of any of the men who founded and promoted this movement. But there are three references each to King David, Moses and Plato and two each to King Midas and Solomon.

As a text book for those who make up the upper quarter of the personnel of industry and who wish to get a start in the problem of economics the book might be useful if the references at the end of each chapter are used. These references appear to be up to date and well selected. The questions which appear at the end of each chapter, as a rule, call for little reasoning but a high type of memory for facts.

The reviewer is inclined to feel that whatever we may think of the methods of yellow journalism, the Sunday supplement, Hollywood and the national game, these things are very close to the life of every man. Economics also is very close to the life of every man and he is intensely aware of it. However, as interested as he may be, he does not possess the intellectual ability to think in the field of abstract ideas and symbols, which are the tools of the economists as we know them today. The reviewer believes, however, that it is possible to teach every man those economic principles necessary for him to function as the "head of a family," employee and citizen. But this will not be done through text books or teaching methods as we know them now, but through methods of teaching which are yet to be evolved. To every man the pay check is a tangible thing and he has intelligence enough to see it disappear and see how it is created. There are enough things that happen to him every day of his life in the home and in the shop which he can see, touch, and think about in his crude way, which will furnish all the material for teaching economic principles that will be necessary for him to comprehend, in order to play his part in getting a living for himself, the organization which employs him, and the state which protects him. His economics must be as dynamic as the moving picture he attends, the evening paper he buys, and the ball game he goes crazy over. Here and there in this country economic classes have been taught to workers in manufacturing establishments where the results just set forth were attained. This will be repeated again and again and in time will become general The principles of economics function in the shop as surely as those of physics and chemistry. Yet we successfully harness the latter forces to the workers in a relatively simple way. The method of harnessing economic forces will be as simple when it is found. We are probably failing now because we overlook simplicity.

BENJAMIN E. MALLARY[3]

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Industrial Coal—Purchase, Delivery and Storage. A report of the American Engineering Council. Ronald Press, New York, 1924, pp. ix, 419. (658.9:662.6)

"'Industrial Coal—Purchase, Delivery and Storage" is a report on an engineering survey conducted under the combined auspices of President Harding's Coal Commission and the American Engineering Council.

Intermittent or seasonal operation (47 per cent of idle time being due to this factor) and overdevelopment of mine capacity are the two outstanding reasons for the ills of the coal industry. With these as major premises, the "simple and practical" method of seasonal storage by consumers is put forward as the remedy. This remedy has the advantage of (1) requiring no radical changes and (2) in the long run lessening the consumers' annual coal bill since storage leads to stabilization and stabilization in turn to reduced production and transportation costs.

Chapter I on the Plan of the Investigation has only a passing interest to the general reader, though the questionnaire used by the investigating committee (pages 34-37) is of more than casual moment to the student of investigation method.

The general survey of the extent of coal storage as now practiced (Chapter II) shows a rather spotty condition. For instance, the heaviest stock on record was on January 1, 1919, after an intensive campaign on the part of the Fuel Administration to induce all buyers of coal to store and yet "though the average plant (exclusive of steel works and coke ovens) had a stock of 88 days and though the weighted average stock of large and small plants was sufficient for 65 days, yet fully one-fourth of the plants had coal for less than 28 days." Furthermore, "the typical consumer even among car load buyers is a man who uses less than one car a week" and "the effort of the small consumer to obtain supplies at times of shortage may have an effect upon the market all out of proportion to the tonnage he requires, the more so because coal is frequently to him a minor item of expense. It is, therefore, important as a matter of public welfare that adequate storage be provided for him."

Under the general heading of Deterioration and Spontaneous Combustion, the history of this problem is discussed and both the physical and chemical aspects of the subject are treated. Though a technical matter this chapter is sufficiently non-technical to be readily understood by the layman. Incidentally there are many practical suggestions in the chapter which should be of use to the consumer who stores coal in any considerable quantities. Other technical phases of storage are dealt with in the chapters on Storage Equipment and Anthracite Storage.

The economic phases of storage are treated in the chapters on the Relation of Transportation to Storage, Storage at the Head of the Great Lakes, Storage of Local Communities, Storage at Tidewater by Government Departments, the Location of Storage Points, Storage Equipment Costs, Insuring Coal in Storage, Taxing Coal in Storage and Financing Coal in Storage.

The listing of the above chapters raises what to me is the greatest weakness of the book, that is, the lack of any systematic development of the subject matter. For instance, the technical and the economic phases follow one another in no particular sequence. Thus, Chapters III and VIII deal largely with technical matters, but the chapters between are largely economic in their aspect.

Furthermore, the more general subjects such as Storage by Communities which deals with Districts and States and Cities might well be placed immediately following the general chapters at the beginning of the book.

The title of the book, also, is misleading. Surely the subject matter is far from dealing with Industrial Coal alone, while the sub-heads of Purchase and Delivery are touched upon so little as to make one speculate why they are mentioned at all; a feeling which is borne out by the fact that neither of these subjects is even listed in the index. A title such as "The Storage of Coal" would fit the subject matter of the book much better than the present title.

The text is adequately supplemented throughout by charts, maps, and pictures. For the person who cares to delve further into the subject, an exhaustive bibliography is furnished. The character of the contributors, too, insures that the work is one of real merit.

It is interesting and perhaps significant to note, in closing, that in a book fostered by an engineering group and written largely by engineers, nine of the twelve chapters deal primarily with the economic rather than the purely technical aspects of the subject.

JOHN S. KEIR[4]

Managerial Accounting, Volume I. By James O. McKinsey.[5] The University of Chicago Press, Chicago, 1924, pp. xvi, 655. (657)

Professor McKinsey presents a book that should promote mutual understanding between manager and accountant. Its specific form is that of a text-book suitable for rounding out a basic training in accounting which is considered essential to good balance in any college's business administration course. He assumes that the purpose of such basic training is to teach the student how accounting can be used most effectively by giving the student, first, an appreciation of the business problems which are customary to the typical business unit; second, a working knowledge of accounting technique; and, third, a thorough training in the use of accounting and statistical data in planning and controlling business operations. The present volume provides text, question and exercise material for the first half of the course in Managerial Accounting at the University of Chicago, which has for prerequisites: (1) Organization of Industry; (2) Elements of Economics; (3) Elements of Business Administration; and (4) Introduction to Accounting.

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Chapter texts reflect the breadth of the author's experience combined with his appreciative understanding of executive problems and needs. Woven into the fabric of each chapter is a thread work revealing the author's intimate contact, not only with small and large concerns, but also with those suffering the growing pains of travail from a small to a large concern.

In stating his purpose and plan, Mr. McKinsey says that his "method of approach to the study of accounting is equally desirable for the prospective business executive and the prospective professional or private accountant. If the accountant is to be of most service to the business executive, he must understand the latter's point of view and be able to present data of such nature and in such form that the executive can use it in the solution of his daily problems." Moreover, the text-book, as a reference source for the practicing accountant, will prove a mine of suggestion, for ninety-three out of the total six hundred and fifty-five pages are utilized for a generous assortment of charts, report forms, procedure outlines, and other valuable exhibits.

On the other hand, the practicing accountant, prosecuting the task of reading the full text, might come to feel that this is clearly not a book dealing with the accepted "principles of accounting," concerning which many authoritative works are already available. One finds much discussion here that relates to other than strictly "accounting" activities. By the inclusion of rather much that shows how accounting, statistics, budgets, etc., all fit into the modern scheme of management control, it may be felt that there is an over-argument for the use of accounting as if it were solely to satisfy an executive's needs. Obviously, in addition, accounting should serve for "accounting" of financial stewardship, for a cross check against error or thievery, as a basis for tax calculations, and so forth.

Nevertheless, so often does one get the impression that auditors are called in only to verify accounts after an embezzlement and so numerous and ample are the available treatises on generally accepted principles and practices in these recognized fields of accounting service, that a sane emphasis of the major potential value of accounting as an executive tool is unlikely to receive too great emphasis. For instance, thoroughly in line with his admitted viewpoint and purpose, the author properly subordinates space allotted to financial statements so that this discussion becomes a subdivision of his discussion of reports in general. They are but one group of many reports necessary for the vital coordinating executive control by "accounting."

Where adaptation of existing practices seems necessary in order to gain this additional utilization of accounting, Mr. McKinsey does not hesitate to suggest frankly where and why present practices should be revised. His attitude is fair when, recognizing occasional differences of opinion as to current practice, he outlines the opinions of others before stating his own clearly, and the why of it. He dissents at times from the acknowledged majority opinion, but it is clear on which side of all questions he stands. The author's opinions are essentially in line with the more advanced thought, including that of the corporation whose control practices it is your reviewer's privilege to scrutinize, even though that company may not yet have effected the practice of the advanced principles it tentatively, informally accepts.

The first half of the book deals, first, with the need and nature of standards and records, second, with organization for standards and records control, and, third, with administrative reports. Here the main argument is for a consolidation of all "standards and records functions" under one head, styled a controller, who reports directly to the president or general manager. The discussion assumes "the existence of a controller with centralized control of standards and records, even though in the majority of business firms there is no such executive." Nevertheless, "the controllership function exists in every business but it is usually more clearly discernible in a large business than in a small one and, therefore, the former serves best for purposes of our study. The general principles here outlined are equally applicable to small or large concerns but the method of carrying these principles out will vary according to the size of the business."

As each head of the subject matter is discussed the treatment is developed from a typical outline specifying the need for the suggested activity; the type of executive designated; the functions, duties or "sections" of activity; their relations to other functions; the procedures, mechanisms, or manuals required; and the organization set-up suitable for execution of the functions.

The second half of the book comprises four comprehensive parts, developed under the four heads: (A) sales control; (B) purchasing control; (C) traffic control; (D) production control. Here the treatment of each part devolves around a more elaborate skeleton outline.

1. Recognition of need and definition of the problem faced
2. Description of the type of current research indicated to respond to the need
3. The accounting treatment to record current activity
4. The manner of establishing budget estimates based upon the experience and in view of anticipations
5. Example of the typical procedure set up for execution of approved budget programs
6. Suggestion of typical check-up reports designed to hold the organization accountable for execution of approved budgets according to the established procedures.

Of course, the discussion under each of the four heads is not sufficiently detailed to profess exhaustive treatment but the text reviews the major phases of each functional activity sufficiently to enable one to grasp interrelations, to recognize the executive problems involved, and to see the desirable contribution accounting may make toward coordinating control.

Under the concluding head, "Production Control," the treatment is even more extended than indicated by the expanded skeleton. Here under the head of "Procedures," a chapter exposes the operation of balance of stores control of inventories, presenting in manual style detail a description of the activities of the Sales Order Section, the Balance of Stores Section, the Factory Order Section and the Factory Schedules Section. After touching upon cost accounting to emphasize its value as a tool for an executive's coordinating control, "Production Control's" concluding chapter submits many report forms, well designed from the executive's viewpoint and adaptable to serving his needs in this intricate but vital field of control.

Admittedly, many phases of executive control are not treated within the covers of the present volume. The second volume, as yet unpublished, holds promise of continuing a broad gauged treatment of these remaining phases. For the present volume has first defined with clear comprehension the problems of executive control and has then directed the light of a new viewpoint toward four of the phases of activity that have heretofore elicited much hackneyed treatment. Accounting may have other utilities, but the sane treatment from the newer viewpoint throughout this book presages a day in the not distant future when the greatest utility of accounting will be found in its service in managerial control.

Joseph H. Barber[6]

Year Book 1924. National Association of Cost Accountants, New York, 1925, pp. 299. (657.452)

The most recent year book of the N. A. C. A. contains the proceedings of the Fifth International Cost Conference, held in Springfield, Mass., September 22-25, 1924. The papers presented are grouped under five headings:

1. Some Practical Applications of Budget Methods

The first paper under this heading described a long established budget primarily based on sales quota and provoked the only discussions on the subject. A careful consideration and summing up of these discussions have confirmed the present reviewer in his belief that most manufacturing establishments have not yet established their production and accounting methods on a sufficiently scientific basis to develop a budget system that will be of any substantial use, and that where this has been done no real difficulty will be encountered in developing a budget system that will do all that can be expected of it. For a budget for a manufacturing establishment can surely never be anything but a forecast or estimate on the strength of past experiences as reflected in the accounts and costs of previous periods and other statistics of manufacturing and selling, of income and expenditures connected with an estimated volume of business, whether this is based on an estimated necessary curtailment of manufacturing because of a poor business outlook, an expectation to sell all the plant can produce, or a campaign to sell a quantity that will necessitate additional manufacturing and selling facilities.

2. Some Deficiencies of Cost Accounting and Their Cures

Three papers were read on this subject, the first by a professor of accounting; the second by a well known accountant who exploits a special cost accounting system of his own; the third by the factory manager of a large well-known middle-western plant. The net result of these papers and the subsequent discussions reveal a refreshing realization and acknowledgment on the part of the conference as a whole, that most accounting departments of today are far from giving full satisfaction to those for whose guidance in the shaping of general policies or in the direct management of production they exist. As the present reviewer first learned from the late Fred. W. Taylor, and later from his own experience, this is principally due to a general lack of cooperation between factory managers and cost accountants, who only too often understand but little, if anything, about each other's work and difficulties. In fact, it was this that induced Mr. Taylor first to take a course in bookkeeping and accounting and later to undertake an extensive study of cost finding and accounting methods as they existed in this country toward the end of the eighties of the last century, only to find nowhere anything that appealed to him as fully serving its ostensible purpose, though he found many elements that seemed to be well thought out and worthy of careful consideration. With the self assurance and the wonderful capacity for work which characterized him, he laid a foundation on which he eventually built up the interlocking cost and accounting system that has always been an important feature of the Taylor System of Management, though Mr. Taylor never published anything about this feature of it.

This system recognizes the absolute necessity for cordial cooperation between the planning department and the cost and accounting department, while it relieves shop foremen of any direct responsibility for correct charges in accordance with the "card of accounts," so often referred to as the "bible."

This seems to be a proper occasion on which to call attention to some of the other differences between the function of an accounting department as apparently viewed by the whole conference and the functions of an accounting department operating under a Taylor System. Under a Taylor System no returns or reports on cost figures serve as a check on direct efficiency, which is entirely in the hands of the planning department with its control over all means and methods of production, time and rate setting, etc., and daily responsibility for their proper use. Hence under a Taylor System, with its complete functionalization of all activities, the cost and accounting department only records, classifies, and reports results, on forms so constructed that with rare exceptions they fully interpret themselves to those for whose information they are prepared. In other words, the accountant's function is essentially that of a compiler and statistician, and as such also an historian; and as in fact the modern historian often forecasts, or at least attempts to forecast, future events from past events, and may even go so far as to suggest policies for avoiding the repetition of past mistakes in the future, there is no reason why the aspiring accountant should resent being considered an historian.

An objection raised against the interlocking of costs with the financial accounting on the ground that it takes too long after the end of each period before the books can be closed and reports made, is undoubtedly valid in many cases, but as under a Taylor System this difficulty is reduced to a minimum, and as a knowledge of shop efficiency

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